

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 736 838
 Injection pump
 Pump designation : PES6P120A120RS7275
 EP type number : 0 412 726 886
 Governor
 Governor design. : RQV400...1250PA964
 -16K
 Governor no. : 0 421 815 334

Customer-spec. information
 Customer : C.D.C.

Engine : 6BTA-A
 1st version kW : 119.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 1 417 413 047
 Inlet press., bar : 1.50
 Overflow
 quantity min. 1/h: 105...125
 Test nozzle holder
 assembly : 1 688 901 103
 Opening
 pressure, bar : 207...210
 Test lines : 1 680 750 015
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 22...24

A01

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250
 Rack travel in mm : 13.40...13.50
 Del. quantity cm³/ : 15.3...15.5
 100 s: (15.0...15.8)
 Spread cm³ : 0.8
 100 s: (1.2)

2nd speed rpm : 400
 Rack travel in mm : 6.0...6.4
 Del. quantity cm³/ : 1.4...2.0
 100 s: (1.2...2.2)
 Spread cm³ : 0.4
 100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400
 travel mm : 1.40...1.60
 2nd speed rpm : 500
 travel mm : 2.30...2.70
 3rd speed rpm : 800
 travel mm : 4.80...5.20
 4th speed rpm : 1250
 travel mm : 6.90...7.10
 5th speed rpm : 1500
 travel mm : 8.30...8.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 1200
 Del. quantity : 152.5...154.5
 1000 : (149.5...157.5)
 Spread cm³ : 8.00
 1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 110...122

Testing:
1st rack travel in: 12.40
Speed rpm : 1310...1340
2nd rack travel in: 4.00
Speed rpm : 1560...1570
4th rack travel in: 1675
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 65...77
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.2

Testing:
Speed rpm : 300
Minimum rack trave: 7.70
Speed rpm : 400
Rack travel in mm : 6.00...6.40

CONSTANT REGULATION
Speed rpm : 325...519

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.40...13.50
2nd speed rpm : 900
Rack travel in m: 12.00...12.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1250
Pressure hPa : 1200
Rack travel mm : 13.40...13.50

Measurement
Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 10.30...10.70
2nd pressure hPa : 265
Rack travel in m: 11.10...11.20
3rd pressure hPa : 440
Rack travel in m: 12.70...13.10

START CUT-OUT

A02

Speed 1/min : 250 (260)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 900
Del.quantity cm3/ : 130.5...136.5
1000 s: (127.5...139.5)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1250
Del.quantity cm3/ : 108.5...112.5
1000 s: (106.5...114.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1310...1340

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 6.00...6.40
Del.quantity cm3/ : 14.0...20.0
1000 s: (12.0...22.0)
Spread cm3 : 4.00
1000 s: (8.00)

Remarks:

: FB-BLOCK. 6.25° NACH
: /AFTER FB ZYL. 1
: C.D.C. # 392 1918

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 736 838
 Injection pump
 Pump designation : PES6P120A120RS7275
 EP type number : 0 412 726 886
 Governor
 Governor design. : RQV400...1250PA964
 -19K
 Governor no. : 0 421 815 342

Customer-spec. information
 Customer : C.D.C.

Engine : 68TA-A

1st version kW : 130.5
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 105...125

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 13.40...13.50

Del. quantity cm³/ : 15.9...16.1

100 s: (15.6...16.4)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 400

Rack travel in mm : 5.9...6.3

Del. quantity cm³/ : 1.4...2.0

100 s: (1.2...2.2)

Spread cm³ : 0.4

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400
 travel mm : 1.30...1.50

2nd speed rpm : 500
 travel mm : 2.30...2.70

3rd speed rpm : 800
 travel mm : 4.80...5.20

4th speed rpm : 1250
 travel mm : 6.90...7.10

5th speed rpm : 1500
 travel mm : 8.30...8.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1250
 Aneroid pressure h: 1200
 Del. quantity : 159.5...161.5
 1000 : (156.5...164.5)
 Spread cm³ : 8.00
 1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 111...123

Testing:
1st rack travel in: 12.40
Speed rpm : 1300...1330
2nd rack travel in: 4.00
Speed rpm : 1560...1570
4th rack travel in: 1675
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 65...77
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.10

Testing:
Speed rpm : 300
Minimum rack trave: 7.40
Speed rpm : 400
Rack travel in mm : 5.90...6.30

CONSTANT REGULATION
Speed rpm : 325...519

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.40...13.50
2nd speed rpm : 900
Rack travel in m: 12.00...12.20
3rd speed rpm : 500
Rack travel in m: 11.30...11.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1250
Pressure hPa : 1200
Rack travel mm : 13.40...13.50

Measurement
Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 10.20...10.60
2nd pressure hPa : 260
Rack travel in m: 11.30...11.40
3rd pressure hPa : 430
Rack travel in m: 12.80...13.20

START CUT-OUT

Speed 1/min : 250 (260)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 900
Del.quantity cm3/ : 135.0...141.0
1000 s: (132.0...144.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1250
Del.quantity cm3/ : 110.0...114.0
1000 s: (108.0...116.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1300...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 13.00...14.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.90...6.30
Del.quantity cm3/ : 14.0...20.0
1000 s: (12.0...22.0)
Spread cm3 : 4.00
1000 s: (8.00)

Remarks:

: FB-BLOCK. 6.25° NACH
: /AFTER FB ZYL. 1
: C.D.C. # 392 1920

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 02.94
 Replaces : 07.93
 Test oil : ISO-4113

Combination no. : 0 402 736 844

Injection pump
 Pump designation : PES6P120A120RS7287
 EP type number : 0 412 726 896
 Governor
 Governor design. : RQV400...1250PA964
 -21K
 Governor no. : 0 421 815 354

Customer-spec. information
 Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 171.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 90...110

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,7

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x3.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65
 : (3.50...3.70)

Rack travel in mm : 10.00...13.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 15.00...15.10

Del. quantity cm³/ : 19.9...20.1

100 s: (19.6...20.4)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 400.0

Rack travel in mm : 6.1...6.5

Del. quantity cm³/ : 1.5...2.1

100 s: (1.3...2.3)

Spread cm³ : 0.4

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400

travel mm : 1.40...1.60

2nd speed rpm : 550

travel mm : 3.10...3.50

3rd speed rpm : 800

travel mm : 4.30...4.70

4th speed rpm : 1250

travel mm : 7.00...7.20

5th speed rpm : 1500

travel mm : 9.20...9.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Aneroid pressure h: 1200
 Del. quantity : 199.0...201.0
 1000 : (196.0...204.0)

Spread cm³ : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 114.0...122.0

Testing:

1st rack travel in: 13.50
Speed rpm : 1310...1320
2nd rack travel in: 4.00
Speed rpm : 1460...1490
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 68.0...76.0

Testing:

Speed rpm : 300
Minimum rack travel: 7.80
Speed rpm : 400
Rack travel in mm : 6.10...6.50

CONSTANT REGULATION

Speed rpm : 325...521

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 15.00...15.10
2nd speed rpm : 900
Rack travel in m: 14.30...14.50
3rd speed rpm : 600
Rack travel in m: 13.20...13.60
4th speed rpm : 1250
Rack travel in m: 14.50...14.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 1150
Pressure hPa : 1200
Rack travel mm : 15.00...15.10

Measurement

Speed 1/min : 1150

1st pressure hPa : -
Rack travel in m: 10.10...10.50
2nd pressure hPa : 355
Rack travel in m: 11.30...11.40
3rd pressure hPa : 645

A06

Rack travel in m: 13.30...13.70

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 900
Del.quantity cm³/ : 183.0...189.0
1000 s: (180.0...192.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1150
Del.quantity cm³/ : 94.5...98.5
1000 s: (92.5...100.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 13.50
Speed rpm : 1310...1320

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.10...6.50
Del.quantity cm³/ : 15.0...21.0
1000 s: (13.0...23.0)
Spread cm³ : 4.00
1000 s: (8.00)

Remarks:

: C.D.C. # 3921925

Mark position of port-opening mark
6.25° before port opening cylinder 1
on clutch

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
Edition : 02.94
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 736 846
Injection pump
Pump designation : PES6P120A120RS7287
EP type number : 0 412 726 896
Governor
Governor design. : RQV400...1250PA1081K
Governor no. : 0 421 815 360

Customer-spec. information
Customer : C.D.C

Engine : 6BTA-A

1st version kW : 156.0
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 086

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 90...110

Test nozzle holder
assembly : 1 688 901 103

Opening
pressure, bar : 207...210

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY
Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65
: (3.50...3.70)
Rack travel in mm : 10.00...13.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250
Rack travel in mm : 13.80...13.90
Del.quantity cm3/ : 17.2...17.4
100 s: (16.9...17.7)
Spread cm3 : 0.8
100 s: (1.2)

2nd speed rpm : 400.0
Rack travel in mm : 6.0...6.4
Del.quantity cm3/ : 1.8...2.4
100 s: (1.6...2.6)
Spread cm3 : 0.4
100 s: (0.8)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400
travel mm : 1.40...1.60
2nd speed rpm : 550
travel mm : 3.10...3.50
3rd speed rpm : 800
travel mm : 4.30...4.70
4th speed rpm : 1250
travel mm : 7.00...7.20
5th speed rpm : 1500
travel mm : 9.20...9.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1250
Aneroid pressure h: 1200
Del.quantity : 172.5...174.5
1000 : (169.5...177.5)
Spread cm3 : 8.00
1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 112...124

Testing:
1st rack travel in: 12.80
Speed rpm : 1315...1345
2nd rack travel in: 4.00
Speed rpm : 1480...1490
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...78
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.2

Testing:
Speed rpm : 300
Minimum rack travel: 8.90
Speed rpm : 400
Rack travel in mm : 6.00...6.40

CONSTANT REGULATION
Speed rpm : 345...495

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 13.80...13.90
2nd speed rpm : 800
Rack travel in m: 12.10...12.30
3rd speed rpm : 500
Rack travel in m: 11.15...11.55

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1250
Pressure hPa : 1200
Rack travel mm : 13.80...13.90

Measurement
Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 9.50...9.90
2nd pressure hPa : 305
Rack travel in m: 10.80...10.90
3rd pressure hPa : 585
Rack travel in m: 12.60...13.00

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm³/ : 138.5...144.5
1000 s: (135.5...147.5)
Spread cm³ : 8.00
1000 s: (12.0)
Speed rpm : 1250
Del.quantity cm³/ : 89.0...93.0
1000 s: (87.0...95.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 1315...1345

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.00...6.40
Del.quantity cm³/ : 18.0...24.0
1000 s: (16.0...26.0)
Spread cm³ : 4.00
1000 s: (8.00)

Remarks: : C.D.C. # 392 4903

Start-of-delivery mark 6° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 736 847
 Injection pump
 Pump designation : PES6P120A12ORS7287
 EP type number : 0 412 726 896
 Governor
 Governor design. : RQV400...1250PA964
 -22K
 Governor no. : 0 421 815 366

Customer-spec. information
 Customer : C.D.C.

Engine : 6BTA-A

1st version kw : 156.0

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 90...110

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 10.00...13.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150
 Rack travel in mm : 14.30...14.40
 Del. quantity cm³/ : 17.7...17.9
 100 s: (17.4...18.2)
 Spread cm³ : 0.8
 100 s: (1.2)

2nd speed rpm : 400
 Rack travel in mm : 6.0...6.4
 Del. quantity cm³/ : 1.6...2.2
 100 s: (1.4...2.4)
 Spread cm³ : 0.4
 100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400
 travel mm : 1.40...1.60
 2nd speed rpm : 550
 travel mm : 3.10...3.50
 3rd speed rpm : 800
 travel mm : 4.30...4.70
 4th speed rpm : 1250
 travel mm : 7.00...7.20
 5th speed rpm : 1500
 travel mm : 9.20...9.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Aneroid pressure h: 1200
 Del. quantity : 177.0...179.0
 1000 : (174.0...182.0)
 Spread cm³ : 8.00
 1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 112...124

Testing:
1st rack travel in: 13.10
Speed rpm : 1300...1330
2nd rack travel in: 4.00
Speed rpm : 1475...1485
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...78
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.20

Testing:
Speed rpm : 300
Minimum rack travel: 8.80
Speed rpm : 400
Rack travel in mm : 6.00...6.40

CONSTANT REGULATION
Speed rpm : 345...495

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 14.10...14.30
2nd speed rpm : 1150
Rack travel in m: 14.30...14.40
3rd speed rpm : 800
Rack travel in m: 13.10...13.50

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1150
Pressure hPa : 1200
Rack travel mm : 14.30...14.40

Measurement
Speed 1/min : 1250

1st pressure hPa : -
Rack travel in m: 10.40...10.80
2nd pressure hPa : 425
Rack travel in m: 11.40...11.50
3rd pressure hPa : 685
Rack travel in m: 13.20...13.60

START CUT-OUT

A10

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm³/ : 159.0...165.0
1000 s: (156.0...168.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1150
Del.quantity cm³/ : 99.0...103.0
1000 s: (97.0...105.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.10
Speed rpm : 1300...1330

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.00...6.40
Del.quantity cm³/ : 16.5...22.5
1000 s: (14.5...24.5)
Spread cm³ : 4.00
1000 s: (8.00)

Remarks:
: FB-BLOCK. 6.25° NACH
: /AFTER FB ZYL. 1
: C.D.C. # 392 1923

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 736 848
 Injection pump
 Pump designation : PES6P120A12ORS7314
 EP type number : 0 412 726 901
 Governor
 Governor design. : RQV400...1250PA964-2
 3K
 Governor no. : 0 421 815 374

Customer-spec. information
 Customer : CDC

Engine : 6BTA-A

1st version kW : 142.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 90...110

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 10.00...13.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50(0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150
 Rack travel in mm : 14.20...14.30
 Del. quantity cm³/ : 16.5...16.7
 100 s: (16.2...17.0)
 Spread cm³ : 0.8
 100 s: (1.2)

2nd speed rpm : 400
 Rack travel in mm : 6.9...7.3
 Del. quantity cm³/ : 1.5...2.1
 100 s: (1.3...2.3)
 Spread cm³ : 0.4
 100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400
 travel mm : 1.80...2.00
 2nd speed rpm : 550
 travel mm : 3.30...3.70
 3rd speed rpm : 800
 travel mm : 4.30...4.70
 4th speed rpm : 1250
 travel mm : 7.10...7.30
 5th speed rpm : 1500
 travel mm : 9.20...9.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Aneroid pressure h: 1200
 Del. quantity : 165.5...167.5
 1000 : (162.5...170.5)
 Spread cm³ : 8.00
 1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 112...124

Testing:

1st rack travel in: 12.80
Speed rpm : 1295...1325
2nd rack travel in: 4.00
Speed rpm : 1465...1475
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 66...78
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 7.10

Testing:

Speed rpm : 300
Minimum rack trave: 9.80
Speed rpm : 400
Rack travel in mm : 6.90...7.30

CONSTANT REGULATION

Speed rpm : 345...495

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 14.20...14.30
2nd speed rpm : 800
Rack travel in m: 13.00...13.40
3rd speed rpm : 1250
Rack travel in m: 13.80...14.00

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1150
Pressure hPa : 1200
Rack travel mm : 14.20...14.30

Measurement

Speed 1/min : 1150

1st pressure hPa : -
Rack travel in m: 11.10...11.50
2nd pressure hPa : 375
Rack travel in m: 12.10...12.20
3rd pressure hPa : 500
Rack travel in m: 13.10...13.50

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm3/ : 144.0...150.0
1000 s: (141.0...153.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 1150
Del.quantity cm3/ : 106.5...110.5
1000 s: (104.5...112.5)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.80
Speed rpm : 1295...1325

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 13.50...14.50

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.90...7.30
Del.quantity cm3/ : 15.0...21.0
1000 s: (13.0...23.0)
Spread cm3 : 4.00
1000 s: (8.00)

Remarks:

: C.D.C. # 392 1922

Start-of-delivery blocking 5,75° after
start of delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 736 848
 Injection pump
 Pump designation : PES6P120A120RS7314
 EP type number : 0 412 726 901
 Governor
 Governor design. : RQV400...1250PA964-2.
 3K
 Governor no. : 0 421 815 374

Customer-spec. information
 Customer : CDC

Engine : 6BTA-A

1st version kW : 142.0
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 086

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 90...110

Test nozzle holder
 assembly : 1 688 901 103

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 015

Outside diameter
 x wall thickness
 x length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65
 : (3.50...3.70)
 Rack travel in mm : 10.00...13.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50(0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 14.20...14.30

Del.quantity cm³/ : 16.5...16.7

100 s: (16.2...17.0)

Spread cm³ : 0.8

100 s: (1.2)

2nd speed rpm : 400.0

Rack travel in mm : 6.9...7.3

Del.quantity cm³/ : 1.5...2.1

100 s: (1.3...2.3)

Spread cm³ : 0.4

100 s: (0.8)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400

travel mm : 1.40...1.60

2nd speed rpm : 550

travel mm : 3.10...3.50

3rd speed rpm : 800

travel mm : 4.30...4.70

4th speed rpm : 1250

travel mm : 7.00...7.20

5th speed rpm : 1500

travel mm : 9.20...9.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 1200

Del.quantity : 165.5...167.5

1000 : (162.5...170.5)

Spread cm³ : 8.00

1000 : (12.00)

RATED SPEED

1st version
Control lever
position degrees: 112...124

Testing:
1st rack travel in: 12.70
Speed rpm : 1295...1325
2nd rack travel in: 4.00
Speed rpm : 1465...1475
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 66...78
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 7.10

Testing:
Speed rpm : 300
Minimum rack travel: 9.80
Speed rpm : 400
Rack travel in mm : 6.90...7.30

CONSTANT REGULATION
Speed rpm : 345...495

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 14.10...14.20
2nd speed rpm : 800
Rack travel in m: 13.00...13.20
3rd speed rpm : 1250
Rack travel in m: 13.80...14.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1150
Pressure hPa : 1200
Rack travel mm : 14.10...14.20

Measurement
Speed 1/min : 1150
Rack travel in m: 11.10...11.50
2nd pressure hPa : 375
Rack travel in m: 12.10...12.20
3rd pressure hPa : 500
Rack travel in m: 13.10...13.50

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 800
Del.quantity cm3/ : 144.0...150.0
1000 s: (141.0...153.0)
Spread cm3 : 8.00
1000 s: (12.0)
Speed rpm : 1150
Del.quantity cm3/ : 106.5...110.5
1000 s: (104.5...112.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.70
Speed rpm : 1295...1325

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...175.0
1000 s: (130.0...180.0)
Rack travel in mm : 13.50...14.50

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.90...7.30
Del.quantity cm3/ : 15.0...21.0
1000 s: (13.0...23.0)
Spread cm3 : 4.00
1000 s: (3.00)

Remarks:

: C.D.C. # 392 1922

Start-of-delivery blocking 5,75° after
start of delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 02.94
 Replaces : 04.92
 Test oil : ISO-4113

Combination no. : 0 402 746 918

Injection pump
 Pump designation : PES6P120A720LS7238
 -10
 EP type number : 0 412 726 873
 Governor
 Governor design. : RQ300/1100PA1013
 Governor no. : 0 421 801 599

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 hLA

1st version kW : 220.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)

Rack travel in mm : 20.00...21.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.00...14.20

Del. quantity cm³/ : 21.3...21.5

100 s: (21.0...21.8)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300

Rack travel in mm : 6.0...6.6

Del. quantity cm³/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 108...110

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 600

Del. quantity : 213.0...215.0

1000 : (210.0...218.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
 position degrees: 94.0...102.0

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 13.60
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1
Control lever
position degrees: 69.0...77.0
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.30

Testing:
Speed rpm : 200
Minimum rack trave: 8.20
Speed rpm : 300
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 600
Pressure hPa : 600
Rack travel mm : 14.00...14.20

Measurement
Speed 1/min : 600

1st pressure hPa : 200
Rack travel in m: 12.30...12.50
2nd pressure hPa : 400
Rack travel in m: 13.70...13.90
3rd pressure hPa : 800
Rack travel in m: 14.30...14.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1400
Speed rpm : 1100
Del.quantity cm3/ : 229.0...232.0
1000 s: (226.0...235.0)

Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400
Speed rpm : 700
Del.quantity cm3/ : 233.0...237.0
1000 s: (230.0...240.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 140.0...142.0
1000 s: (137.0...145.0)
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.60
Speed rpm : 1145...1161

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 02.94
 Replaces : 08.92
 Test oil : ISO-4113

Combination no. : 0 402 746 922

Injection pump
 Pump designation : PES6P120A720LS7238-1
 EP type number : 0 412 726 873
 Governor
 Governor design. : RQ300/1100PA1013-3
 Governor no. : 0 421 801 609

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 hLA

1st version kW : 220.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.30 (0.70)
 Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.70...13.90

Del. quantity cm³/ : 20.5...20.7
 100 s: (20.2...21.0)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300
 Rack travel in mm : 5.9...6.5
 Del. quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 108...110
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600
 Aneroid pressure h: 600
 Del. quantity : 205.0...207.0
 1000 : (202.0...210.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 94.0...102.0

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.50
Speed rpm : 1145...1161
2nd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 69.0...77.0
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.20

Testing:

Speed rpm : 200
Minimum rack travel: 8.40
Speed rpm : 300
Rack travel in mm : 6.10...6.30
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 600
Rack travel mm : 13.70...13.90

Measurement

Speed 1/min : 600

1st pressure hPa : 150
Rack travel in m: 11.60...11.80
2nd pressure hPa : 350
Rack travel in m: 13.10...13.30
3rd pressure hPa : 800
Rack travel in m: 13.90...14.10
4th pressure hPa : 950
Rack travel in m: 14.30...14.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 1100
Del.quantity cm³/ : 221.0...224.0
1000 s: (218.0...227.0)

Spread cm³ : 8.00
1000 s: (12.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 140.0...142.0
1000 s: (137.0...145.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.50
Speed rpm : 1145...1161

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 220.0...240.0
1000 s: (216.0...244.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 02.94
 Replaces : 10.92
 Test oil : ISO-4113
 Combination no. : 0 402 746 923X
 Injection pump
 Pump designation : PES6P120A720LS7237-1
 EP type number : 0 412 726 872
 Governor
 Governor design. : RQ300/1100PA1013-2
 Governor no. : 0 421 801 611

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM447 hA

1st version kW : 184.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 120...140

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
 Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 2- 4- 1- 5- 3
 Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.30 (0.75)
 Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 13.65...13.75
 Del.quantity cm³/ : 19.8...20.0
 100 s: (19.5...20.3)
 Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300
 Rack travel in mm : 6.2...6.8
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.8
 100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 108...110
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1400
 Del.quantity : 198.0...200.0
 1000 : (195.0...203.0)
 Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
 Control lever
 position degrees: 95.0...103.0

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.70
Speed rpm : 1145...1161
2nd rack travel in: 4.00
Speed rpm : 1220...1250
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 72.0...80.0
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.50

Testing:

Speed rpm : 200
Minimum rack travel: 8.30
Speed rpm : 300
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 380...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 12.00...12.30

Measurement

Speed 1/min : 500

1st pressure hPa : 600
Rack travel in m: 12.65...12.75
2nd pressure hPa : 800
Rack travel in m: 12.85...13.05

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 800
Del.quantity cm³/ : 201.0...205.0
1000 s: (198.0...208.0)
Spread cm³ : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 144.0...146.0
1000 s: (141.0...149.0)
Spread cm³ : 8.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 1145...1161

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 200.0...220.0
1000 s: (196.0...224.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 02.94
 Replaces : 12.93
 Test oil : ISO-4113

Combination no. : 0 402 746 958

Injection pump
 Pump designation : PES6P120A720LS7209-2
 EP type number : 0 412 726 898
 Governor
 Governor design. : RQV300...900PA1103
 Governor no. : 0 421 814 076

Customer-spec. information
 Customer : MAN

Engine : D2866LE40

1st version kw : 265.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90
 : (4.75...4.95)
 Rack travel in mm : 12.50...13.50
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.20...11.30

Del.quantity cm³/ : 22.9...23.1

100 s : (22.6...23.4)

Spread cm³ : 0.5

100 s : (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 5.1...5.5
 Del.quantity cm³/ : 4.4...5.0
 100 s : (4.1...5.3)

Spread cm³ : 0.8
 100 s : (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.12...1.32

2nd speed rpm : 360
 travel mm : 1.79...2.19

3rd speed rpm : 410
 travel mm : 2.36...2.56

4th speed rpm : 656
 travel mm : 4.54...4.94

5th speed rpm : 966
 travel mm : 8.35...8.55

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1

Speed rpm : 1030
 Rack travel in mm : 9.50...12.10

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900

Del.quantity : 229.0...231.0
1000 : (226.0...234.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 116.0...124.0

Testing:
1st rack travel in: 10.20
Speed rpm : 950...960
2nd rack travel in: 4.00
Speed rpm : 1010...1040
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 79.0...87.0

Testing:
Speed rpm : 200
Minimum rack trave: 7.00
Speed rpm : 300
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION
Speed rpm : 275...405

START CUT-OUT

Speed 1/min : 220 (240)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 950...960

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 208.0...228.0
1000 s: (204.0...232.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.10...5.50
Del.quantity cm3/ : 43.0...49.0
1000 s: (40.0...52.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 3-7304/1
Setting and blocking of pointer of
start-of-delivery sensor on cyl. 6
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet :
 Edition : 21.06.91
 Replaces :
 Test oil : ISO-4113
 Combination no. : A KV1 877 8
 Injection pump
 Pump designation : PE6P120A320LS7834
 EP type number : 0 412 626 841
 Governor
 Governor design. : RQ300/95CPA971
 Governor no. : 0 421 801 543

Customer-spec. information
 Customer : MB-NFZ

Engine : OM401 LA

1st version kW : 230.0

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 075

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60
 : (5.45...5.65)
 Rack travel in mm : 20.00...21.00
 Firing order : 6- 3- 5- 2- 4- 1
 -

Phasing : 0-60-120-180-240-300
 -360
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600
 Rack travel in mm : 14.50...14.70
 Del.quantity cm³/ : 22.7...22.9
 100 s: (22.4...23.2)

Spread cm³ : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 6.3...6.9
 Del.quantity cm³/ : 1.6...2.2
 100 s: (1.3...2.5)
 Spread cm³ : 0.6
 100 s: (1.0)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 300
 travel mm : 2.00...2.30
 2nd speed rpm : 500
 travel mm : 5.90...6.10
 3rd speed rpm : 950
 travel mm : 6.30...6.50
 4th speed rpm : 1009
 travel mm : 6.60...6.80
 5th speed rpm : 1160
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: 108
 Speed rpm : 600
 Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 600

Aneroid pressure h: 1100
Del.quantity : 227.0...229.0
1000 : (224.0...232.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 96...104

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 13.90
Speed rpm : 990...1005
2nd rack travel in: 4.00
Speed rpm : 1065...1095
4th rack travel in: 1200
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.6

Testing:
Speed rpm : 200
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.30...6.90
Rack travel in mm : 2.00
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.35
2nd speed rpm : 950
Rack travel in m: 14.90...15.10
3rd speed rpm : 800
Rack travel in m: 15.20...15.40

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 600

Measurement
Speed 1/min : 600

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1800
Speed rpm : 950
Del.quantity cm3/ : 236.0...239.0
1000 s: (233.0...242.0)
Spread cm3 : 8.00
1000 s: (12.)
Aneroid pressure h: 1800
Speed rpm : 800
Del.quantity cm3/ : 243.0...247.0
1000 s: (240.0...250.0)
Spread cm3 : 8.00
1000 s: (12.00)
Speed rpm : 500
Del.quantity cm3/ : 122.0...124.0
1000 s: (119.0...127.0)
Spread cm3 : 8.00
1000 s: (12.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.90
Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100

Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PER
 Edition : 14.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 236 005
 Injection pump
 Pump designation : PES6MW100/720/3RS151
 8-1
 EP type number : 0 413 206 018
 Governor
 Governor design. : RQV325...1300MW133-1
 K
 Governor no. : 0 420 083 984

Customer-spec. information
 Customer : PERKINS

Engine : 180TI

1st version kW : 134.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 4.95...5.05
 : (4.90...5.10)
 Rack travel in mm : 13.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300
 Rack travel in mm : 14.30...14.40
 Del.quantity cm³/ : 13.8...14.0
 100 s: (13.5...14.3)
 Spread cm³ : 0.4
 100 s: (0.7)

2nd speed rpm : 325.0
 Rack travel in mm : 5.4...5.6
 Del.quantity cm³/ : 2.1...2.5
 100 s: (1.9...2.7)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL
 1st speed rpm : 325
 travel mm : 1.45...1.95
 2nd speed rpm : 361
 travel mm : 2.09...2.59
 3rd speed rpm : 500
 travel mm : 3.67...4.17
 4th speed rpm : 881
 travel mm : 6.21...6.71
 5th speed rpm : 1355
 travel mm : 9.98...10.48

GUIDE SLEEVE POSITION
 Control-lever position
 Degree: -1
 Speed rpm : 1380
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 900
 Del.quantity : 138.0...140.0
 1000 : (135.0...143.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:

1st rack travel in: 13.30
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1475...1505
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 5.5

Testing:

Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 325
Rack travel in mm : 5.40...5.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 1300
Pressure hPa : 900
Rack travel mm : 14.30...14.40

Measurement

Speed 1/min : 1300

1st pressure hPa : -
Rack travel in m: 9.25...6.35
2nd pressure hPa : 250
Rack travel in m: 10.25...10.35
3rd pressure hPa : 400
Rack travel in m: 12.85...13.15

START CUT-OUT

Speed 1/min : 240 (270)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1300

Del.quantity cm³/ : 138.0...143.0
1000 s: (135.0...143.0)
Spread cm³ : 4.00
1000 s: (7.50)

Aneroid pressure h: 900
Speed rpm : 800
Del.quantity cm³/ : 135.0...139.0
1000 s: (132.0...142.0)

Spread cm³ : 6.00
1000 s: (9.00)

Aneroid pressure h: 900
Speed rpm : 500
Del.quantity cm³/ : 110.0...114.0
1000 s: (107.0...117.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 71.0...73.0
1000 s: (69.0...75.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.30
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...92.0
1000 s: (75.0...95.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 21.0...25.0
1000 s: (18.5...27.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Start-of-delivery blocking 46.5°
before start of delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 09.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 244 031
 Injection pump
 Pump designation : PES4MW100/720RS1513-
 1
 EP type number : 0 413 204 014
 Governor
 Governor design. : RQV300...1300MW125-3
 Governor no. : 0 420 083 260

Customer-spec. information
 Customer : MB

Engine : OM364LA

1st version kw : 104.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve
 : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 688 901 101
 Opening
 pressure, bar : 207...210
 Test lines : 1 680 750 089
 Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32
 Prestroke mm : 5.20...5.30
 : (5.15...5.35)

Rack travel in mm : 21.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300
 Rack travel in mm : 12.80...12.90
 Del.quantity cm3/ : 12.1...12.3
 100 s: (11.9...12.5)
 Spread cm3 : 0.3
 100 s: (0.6)
 2nd speed rpm : 300.0
 Rack travel in mm : 4.2...4.4
 Del.quantity cm3/ : 1.2...1.6
 100 s: (0.9...1.9)
 Spread cm3 : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.15...1.65
 2nd speed rpm : 413
 travel mm : 2.25...2.75
 3rd speed rpm : 880
 travel mm : 4.75...5.25
 4th speed rpm : 1354
 travel mm : 8.43...8.93

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1350
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 1200
 Del.quantity : 121.0...123.0
 1000 : (119.0...125.0)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 11.80
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 74...82

Testing:
Speed rpm : 200
Minimum rack travel: 6.00
Speed rpm : 300
Rack travel in mm : 4.20...4.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 12.80...12.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 6.80...7.00
2nd pressure hPa : 300
Rack travel in m: 8.10...8.30
3rd pressure hPa : 700
Rack travel in m: 11.25...11.35

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 750
Del.quantity cm³/ : 118.0...121.0
1000 s: (115.5...123.5)
Spread cm³ : 5.00
1000 s: (7.00)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 35.0...37.0
1000 s: (33.0...39.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.80
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...125.0
1000 s: (112.0...128.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.20...4.40
Del.quantity cm³/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 15.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 244 032
 Injection pump
 Pump designation : PES4MW100/720RS1519-1
 EP type number : 0 413 204 016
 Governor
 Governor design. : RQV300...1300MW132-1
 Governor no. : 0 420 083 292

Customer-spec. information
 Customer : MB

Engine : OM364LA

1st version kW : 103.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 688 901 101
 Opening
 pressure, bar : 207...210
 Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60
 : (4.45...4.65)

Rack travel in mm : 21.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300
 Rack travel in mm : 13.85...13.95
 Del. quantity cm³/ : 12.5...12.7
 100 s: (12.2...13.0)
 Spread cm³ : 0.3
 100 s: (0.6)
 2nd speed rpm : 300.0
 Rack travel in mm : 3.7...3.9
 Del. quantity cm³/ : 1.0...1.4
 100 s: (0.75...1.65)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.66...1.16
 2nd speed rpm : 629
 travel mm : 2.9...3.4
 3rd speed rpm : 820
 travel mm : 3.86...4.34
 4th speed rpm : 1150
 travel mm : 5.7...6.2
 5th speed rpm : 1354
 travel mm : 7.52...8.02

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1510
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 1400
 Del. quantity : 125.0...127.0
 1000 : (122.0...130.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 12.90
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1435...1465
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 67...75

Testing:
Speed rpm : 200
Minimum rack trave: 4.50
Speed rpm : 300
Rack travel in mm : 3.7...3.9

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1400
Rack travel mm : 13.85...13.95

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.70...10.90
2nd pressure hPa : 550
Rack travel in m: 11.50...11.70
3rd pressure hPa : 800
Rack travel in m: 13.0...13.2

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1400
Speed rpm : 1300
Del.quantity cm3/ : 125.0...127.0
1000 s: (122.0...130.0)
Spread cm3 : 5.00
1000 s: (7.50)
Aneroid pressure h: 1400

Speed rpm : 750
Del.quantity cm3/ : 122.0...126.0
1000 s: (119.0...129.0)
Spread cm3 : 6.00
1000 s: (9.00)
Aneroid pressure h: 1400
Speed rpm : 600
Del.quantity cm3/ : 126.0...130.0
1000 s: (123.0...133.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 66.0...68.0
1000 s: (64.0...70.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.90
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...145.0
1000 s: (132.0...148.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.7...3.9
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 15.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 244 032T3
 Injection pump
 Pump designation : PES4MM100/72ORS1519
 EP type number : 0 413 204 013
 Governor
 Governor design. : RQV300...1300MW132-1.
 Governor no. : 0 420 083 292

Customer-spec. information
 Customer : MB

Engine : OM364LA

1st version kW : 103.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60
 : (4.45...4.65)
 Rack travel in mm : 21.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.40...13.50

Del.quantity cm³/ : 14.0...14.2
 100 s: (13.7...14.5)

Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 3.2...3.4
 Del.quantity cm³/ : 1.0...1.4
 100 s: (0.75...1.65)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.77...1.27
 2nd speed rpm : 530
 travel mm : 2.36...2.86
 3rd speed rpm : 630
 travel mm : 3.29...3.79
 4th speed rpm : 939
 travel mm : 5.52...6.02
 5th speed rpm : 1355
 travel mm : 9.95...10.45

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1300
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 1400
 Del.quantity : 140.0...142.0
 1000 : (137.0...145.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version:
Control lever
position degrees: 110...118

Testing:
1st rack travel in: 12.50
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1435...1465
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 64...72

Testing:
Speed rpm : 200
Minimum rack travel: 4.00
Speed rpm : 300
Rack travel in mm : 3.2...3.4

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1400
Rack travel mm : 13.40...13.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.8...9.9
2nd pressure hPa : 600
Rack travel in m: 10.7...10.9
3rd pressure hPa : 900
Rack travel in m: 12.4...12.6

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1400
Speed rpm : 1300
Del.quantity cm3/ : 140.0...142.0
1000 s: (137.0...145.0)
Spread cm3 : 4.00
1000 s: (7.50)
Aneroid pressure h: 1400
Speed rpm : 750

Del.quantity cm3/ : 133.0...137.0
1000 s: (130.0...140.0)
Spread cm3 : 6.00
1000 s: (9.00)
Aneroid pressure h: 1400
Speed rpm : 600
Del.quantity cm3/ : 133.0...137.0
1000 s: (130.0...140.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 57.0...59.0
1000 s: (55.0...61.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.50
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...150.0
1000 s: (137.0...153.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.2...3.4
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 15.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 244 034
 Injection pump
 Pump designation : PES4MM100/720RS1519
 EP type number : 0 413 204 013
 Governor
 Governor design. : RQV300...1300MW132-3
 Governor no. : 0 420 083 296

Customer-spec. information
 Customer : MB

Engine : OM364LA

1st version kW : 77.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60
 : (4.45...4.65)

Rack travel in mm : 21.00

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.5...11.6

Del.quantity cm³/ : 9.4...9.6

100 s: (9.2...9.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 3.9...4.1

Del.quantity cm³/ : 1.0...1.4

100 s: (0.75...1.65)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.66...1.16

2nd speed rpm : 629

travel mm : 2.9...3.4

3rd speed rpm : 800

travel mm : 3.75...4.25

4th speed rpm : 1140

travel mm : 5.63...6.13

5th speed rpm : 1345

travel mm : 7.39...7.89

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1400

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 94.0...96.0

1000 : (92.0...98.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 106...114

Testing:
1st rack travel in: 1059
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1435...1465
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 65...73

Testing:
Speed rpm : 200
Minimum rack trave: 4.50
Speed rpm : 300
Rack travel in mm : 3.9...4.1

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.5...11.6

Measurement:
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.6...10.8
2nd pressure hPa : 500
Rack travel in m: 11.0...11.2

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1300
Del.quantity cm3/ : 94.0...96.0
1000 s: (92.0...98.0)
Spread cm3 : 3.50
1000 s: (6.00)
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm3/ : 85.5...88.5
1000 s: (83.0...91.0)

Spread cm3 : 5.00
1000 s: (7.00)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 65.0...67.0
1000 s: (63.0...69.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.50
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...135.0
1000 s: (122.0...138.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.9...4.1
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 15.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 244 032
 Injection pump
 Pump designation : PES4MW100/72ORS1519-1
 EP type number : 0 413 204 016
 Governor
 Governor design. : RQV300...1300MW132-1
 Governor no. : 0 420 083 292

Customer-spec. information
 Customer : MB

Engine : OM364LA

1st version kw : 103.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60
 : (4.45...4.65)

Rack travel in mm : 21.00
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.85...13.95

Del.quantity cm³/ : 12.5...12.7

100 s: (12.2...13.0)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 3.7...3.9

Del.quantity cm³/ : 1.0...1.4

100 s: (0.75...1.65)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.66...1.16

2nd speed rpm : 629

travel mm : 2.9...3.4

3rd speed rpm : 820

travel mm : 3.84...4.34

4th speed rpm : 1150

travel mm : 5.7...6.2

5th speed rpm : 1354

travel mm : 7.52...8.02

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1300

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1400

Del.quantity : 125.0...127.0

1000 : (122.0...130.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 112...120

Testing:
1st rack travel in: 12.9
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1435...1465
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 67...75

Testing:
Speed rpm : 200
Minimum rack trave: 4.50
Speed rpm : 300
Rack travel in mm : 3.7...3.9

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1400
Rack travel mm : 13.85...13.95

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.7...10.9
2nd pressure hPa : 550
Rack travel in m: 11.5...11.7
3rd pressure hPa : 800
Rack travel in m: 13.0...13.2

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1400
Speed rpm : 1300
Del.quantity cm3/ : 125.0...127.0
1000 s: (122.0...130.0)
Spread cm3 : 4.00
1000 s: (7.50)
Aneroid pressure h: 1400

Speed rpm : 750
Del.quantity cm3/ : 122.0...126.0
1000 s: (119.0...129.0)
Spread cm3 : 6.00
1000 s: (9.00)
Aneroid pressure h: 1400
Speed rpm : 600
Del.quantity cm3/ : 126.0...130.0
1000 s: (123.0...133.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 66.0...68.0
1000 s: (64.0...70.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.90
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...145.0
1000 s: (137.0...148.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.7...3.9
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 15.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 244 034
 Injection pump
 Pump designation : PES4MW100/72ORS1519
 EP type number : 0 413 204 013
 Governor
 Governor design. : RQV300...1300MW152-3
 Governor no. : 0 420 083 296

Customer-spec. information
 Customer : MB

Engine : OM364LA

1st version kw : 77.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60
 : (4.45...4.65)

Rack travel in mm : 21.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.5...11.6

Del. quantity cm³/ : 9.4...9.6

100 s: (9.2...9.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 3.9...4.1

Del. quantity cm³/ : 1.0...1.4

100 s: (0.75...1.65)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.66...1.16

2nd speed rpm : 629

travel mm : 2.9...3.4

3rd speed rpm : 800

travel mm : 3.75...4.25

4th speed rpm : 1140

travel mm : 5.63...6.13

5th speed rpm : 1345

travel mm : 7.39...7.89

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1400

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del. quantity : 94.0...96.0

1000 : (92.0...98.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 106...114

Testing:
1st rack travel in: 10.5
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1435...1465
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 65...73

Testing:
Speed rpm : 200
Minimum rack travel: 4.50
Speed rpm : 300
Rack travel in mm : 3.9...4.1

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.5...11.6

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.6...10.8
2nd pressure hPa : 500
Rack travel in m: 11.0...11.2

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1300
Del.quantity cm3/ : 94.0...96.0
1000 s: (92.0...98.0)
Spread cm3 : 3.50
1000 s: (6.00)
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm3/ : 85.5...88.5
1000 s: (83.0...91.0)

Spread cm3 : 5.00
1000 s: (7.00)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 65.0...67.0
1000 s: (63.0...69.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.50
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...135.0
1000 s: (122.0...138.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.9...4.1
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 15.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 244 035
 Injection pump
 Pump designation : PES4MW100/72ORS1519
 EP type number : 0 413 204 013
 Governor
 Governor design. : RQV300...1300MW132-3
 Governor no. : 0 420 083 296

Customer-spec. information
 Customer : MB

Engine : OM364LA

1st version kW : 77.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60
 : (4.45...4.65)
 Rack travel in mm : 21.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300
 Rack travel in mm : 11.5...11.6
 Del.quantity cm³/ : 9.4...9.6
 100 s: (9.2...9.8)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 3.9...4.1
 Del.quantity cm³/ : 1.0...1.4
 100 s: (0.75...1.65)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.66...1.16
 2nd speed rpm : 629
 travel mm : 2.9...3.4
 3rd speed rpm : 800
 travel mm : 3.75...4.25
 4th speed rpm : 1140
 travel mm : 5.63...6.13
 5th speed rpm : 1345
 travel mm : 7.39...7.89

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1400
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 1000
 Del.quantity : 94.0...96.0
 1000 : (92.0...98.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 106...114

Testing:
1st rack travel in: 10.5
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1435...1465
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 65...73

Testing:
Speed rpm : 200
Minimum rack travel: 4.50
Speed rpm : 300
Rack travel in mm : 3.9...4.1

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.5...11.6

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.6...10.8
2nd pressure hPa : 500
Rack travel in m: 11.0...11.2

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1300
Del.quantity cm3/ : 94.0...96.0
1000 s: (92.0...98.0)
Spread cm3 : 3.50
1000 s: (6.00)
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm3/ : 85.5...88.5
1000 s: (83.0...91.0)

Spread cm3 : 5.00
1000 s: (7.00)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 65.0...67.0
1000 s: (63.0...69.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.50
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...135.0
1000 s: (122.0...138.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.9...4.1
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB6,11
 Edition : 09.02.94
 Replaces : 03.92
 Test oil : ISO-4113
 Combination no. : 0 403 246 031
 Injection pump
 Pump designation : PES6MM100/72ORS1515
 EP type number : 0 413 206 013
 Governor
 Governor design. : RQV300...1300MW125-4
 Governor no. : 0 420 083 284

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366LA

1st version kW : 127.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 21.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.50...11.60

Del.quantity cm³/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 3.9...4.2

Del.quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.60...9.00

2nd speed rpm : 880

travel mm : 4.90...5.10

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 99.0...101.0

1000 : (97.0...103.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 10.50

Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 62...70
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.05

Testing:

Speed rpm : 200
Minimum rack travel: 5.00
Speed rpm : 300
Rack travel in mm : 3.90...4.20

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.50...11.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.70...8.90
2nd pressure hPa : 300
Rack travel in m: 9.40...9.6000
3rd pressure hPa : 500
Rack travel in m: 10.80...11.00

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1300
Del.quantity cm³/ : 99.0...101.0
1000 s: (97.0...103.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm³/ : 90.5...93.5
1000 s: (88.0...96.0)
Spread cm³ : 5.00
1000 s: (7.00)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 35.0...37.0
1000 s: (33.0...39.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...125.0
1000 s: (112.0...128.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.90...4.20
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 I 1
 Edition : 09.02.94
 Replaces : 06.92
 Test oil : ISO-4113
 Combination no. : 0 403 246 032
 Injection pump
 Pump designation : PES6MM100/72ORS1515
 EP type number : 0 413 206 013
 Governor
 Governor design. : RQV300...1300MW125-5
 Governor no. : 0 420 083 285

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366LA

1st version kw : 142.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 21.00...0.00

B15

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.50...12.60

Del. quantity cm³/ : 11.0...11.2

100 s: (10.8...11.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 4.2...4.4

Del. quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.60...9.00

2nd speed rpm : 880

travel mm : 4.90...5.10

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1100

Del. quantity : 110.0...112.0

1000 : (108.0...114.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 120...128

Testing:

1st rack travel in: 11.50

Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 62...70
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.3

Testing:

Speed rpm : 200
Minimum rack travel: 5.00
Speed rpm : 300
Rack travel in mm : 4.20...4.40

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1100
Rack travel mm : 12.50...12.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.00...9.10
2nd pressure hPa : 250
Rack travel in m: 9.70...9.90
3rd pressure hPa : 500
Rack travel in m: 11.45...11.65

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 1300
Del.quantity cm³/ : 110.0...112.0
1000 s: (108.0...114.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: 1100
Speed rpm : 750
Del.quantity cm³/ : 105.0...108.0
1000 s: (102.5...111.5)
Spread cm³ : 5.00
1000 s: (7.00)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 37.0...39.0
1000 s: (35.0...41.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...125.0
1000 s: (112.0...128.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.20...4.40
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 10.02.94
 Replaces : 07.92
 Test oil : ISO-4113
 Combination no. : 0 403 246 033
 Injection pump
 Pump designation : PES6MW100/720RS1511
 EP type number : 0 413 206 011
 Governor
 Governor design. : RQV300...1300MW125-6
 Governor no. : 0 420 083 286

Customer-spec. information
 Customer : MERCEDES-BENZ

Engine : OM366LA

1st version kw : 156.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 5.20...5.30
 : (5.15...5.35)
 Rack travel in mm : 21.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300
 Rack travel in mm : 12.60...12.70
 Del. quantity cm³/ : 11.5...11.7
 100 s: (11.3...11.9)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 4.1...4.3
 Del. quantity cm³/ : 1.0...1.4
 100 s: (0.7...1.6)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
 travel mm : 8.60...9.00
 2nd speed rpm : 880
 travel mm : 4.90...5.10
 3rd speed rpm : 500
 travel mm : 2.70...3.30
 4th speed rpm : 300
 travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1340
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 1400
 Del. quantity : 115.0...117.0
 1000 : (113.0...119.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:
1st rack travel in: 11.60
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1455...1485
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 61...69

Testing:
Speed rpm : 200
Minimum rack travel: 5.00
Speed rpm : 300
Rack travel in mm : 4.10...4.30

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1400
Rack travel mm : 12.60...12.70

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 6.60...6.80
2nd pressure hPa : 300
Rack travel in m: 7.20...7.40
3rd pressure hPa : 900
Rack travel in m: 11.90...12.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1400
Speed rpm : 1300
Del.quantity cm³/ : 115.0...117.0
1000 s: (113.0...119.0)
Spread cm³ : 5.00
1000 s: (7.00)
Aneroid pressure h: 1400
Speed rpm : 750
Del.quantity cm³/ : 114.5...117.5
1000 s: (112.0...120.0)

Spread cm³ : 5.00
1000 s: (7.00)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 36.0...38.0
1000 s: (34.0...40.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 115.0...125.0
1000 s: (112.0...128.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.10...4.30
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 10.02.94
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 246 034
Injection pump
Pump designation : PES6MW100/72ORS1517
EP type number : 0 413 206 015
Governor
Governor design. : RQV300...1300MW132
Governor no. : 0 420 083 291

Customer-spec. information
Customer : MB-NFZ

Engine : OM366LA

1st version kw : 177.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 688 901 101

Opening
pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60
: (4.45...4.65)
Rack travel in mm : 21.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300
Rack travel in mm : 14.10...14.20
Del. quantity cm3/ : 12.8...13.0
100 s: (12.5...13.3)
Spread cm3 : 0.4
100 s: (0.7)

2nd speed rpm : 300.0
Rack travel in mm : 3.9...4.1
Del. quantity cm3/ : 1.0...1.4
100 s: (0.7...1.6)
Spread cm3 : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 0.82...1.32
2nd speed rpm : 555
travel mm : 4.06...4.56
3rd speed rpm : 720
travel mm : 4.61...5.11
4th speed rpm : 1100
travel mm : 6.27...6.77
5th speed rpm : 1355
travel mm : 8.21...8.71

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1300
Aneroid pressure h: 1400
Del. quantity : 128.0...130.0
1000 : (125.0...133.0)
Spread cm3 : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 114...122

Testing:
1st rack travel in: 13.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1475...1505
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.0

Testing:
Speed rpm : 200
Minimum rack travel: 5.00
Speed rpm : 300
Rack travel in mm : 3.90...4.10

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1400
Rack travel mm : 14.10...14.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.00...10.20
2nd pressure hPa : 500
Rack travel in m: 10.60...10.80
3rd pressure hPa : 850
Rack travel in m: 13.10...13.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1400
Speed rpm : 1300
Del.quantity cm3/ : 128.0...130.0
1000 s: (125.0...133.0)
Spread cm3 : 6.00
1000 s: (9.0)
Aneroid pressure h: 1400
Speed rpm : 750
Del.quantity cm3/ : 128.0...132.0
1000 s: (125.0...135.0)

Spread cm3 : 6.00
1000 s: (9.00)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 44.0...46.0
1000 s: (42.0...48.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.10
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...145.0
1000 s: (132.0...148.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.90...4.10
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 15.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 246 035
 Injection pump
 Pump designation : PES6MW100/72ORS1517-1
 EP type number : 0 413 206 017
 Governor
 Governor design. : RQV300...1300MW132-2
 Governor no. : 0 420 083 293

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366LA

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test Lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60
 : (4.45...4.65)

Rack travel in mm : 21.00...0.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.95...12.05

Del.quantity cm³/ : 10.1...10.3

100 s : (9.9...10.5)

Spread cm³ : 0.4

100 s : (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 4.0...4.2

Del.quantity cm³/ : 1.0...1.4

100 s : (0.7...1.6)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.77...1.27

2nd speed rpm : 490

travel mm : 2.0...2.5

3rd speed rpm : 710

travel mm : 2.78...3.28

4th speed rpm : 1100

travel mm : 4.51...5.01

5th speed rpm : 1353

travel mm : 6.45...6.95

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 112...120

Testing:
1st rack travel in: 11.0
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1455...1485
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.1

Testing:
Speed rpm : 200
Minimum rack travel: 5.00
Speed rpm : 300
Rack travel in mm : 4.0...4.2

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 11.95...12.05

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.8...9.7
2nd pressure hPa : 150
Rack travel in m: 10.25...10.45
3rd pressure hPa : 300
Rack travel in m: 11.25...11.45

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1300
Del.quantity cm³/ : 101.0...103.0
1000 s: (99.0...105.0)
Spread cm³ : 3.50
1000 s: (6.0)
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm³/ : 91.5...94.5
1000 s: (89.0...97.0)

Spread cm³ : 5.50
1000 s: (7.00)
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 93.5...96.5
1000 s: (91.0...99.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 52.0...54.0
1000 s: (50.0...56.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.0
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 110.0...120.0
1000 s: (107.0...123.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.0...4.2
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 15.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 246 036
 Injection pump
 Pump designation : PES6MW100/720RS1517
 EP type number : 0 413 206 015
 Governor
 Governor design. : RQV300...1300MW132-4
 Governor no. : 0 420 083 299

Customer-spec. information
 Customer : MB-NFZ

Engine : OM366LA

1st version kW : 155.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60
 : (4.45...4.65)
 Rack travel in mm : 21.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.45...13.55

Del. quantity cm³/ : 11.8...12.0

100 s: (11.6...12.2)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 3.9...4.1

Del. quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.77...1.27

2nd speed rpm : 490

travel mm : 2.0...2.5

3rd speed rpm : 710

travel mm : 2.78...3.28

4th speed rpm : 1100

travel mm : 4.51...5.01

5th speed rpm : 1353

travel mm : 6.45...6.95

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del. quantity : 118.0...120.0

1000 : (116.0...122.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 114...122

Testing:
1st rack travel in: 12.5
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1470...1500
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.0

Testing:
Speed rpm : 200
Minimum rack travel: 5.00
Speed rpm : 300
Rack travel in mm : 3.9...4.1

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 13.45...13.55

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.1...10.3
2nd pressure hPa : 300
Rack travel in m: 10.7...10.9
3rd pressure hPa : 600
Rack travel in m: 12.5...12.7

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1300
Del.quantity cm3/ : 118.0...120.0
1000 s: (116.0...122.0)
Spread cm3 : 3.50
1000 s: (6.0)
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm3/ : 117.5...120.5
1000 s: (115.0...123.0)

Spread cm3 : 5.50
1000 s: (7.00)
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 117.5...120.5
1000 s: (115.0...123.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 50.0...52.0
1000 s: (48.0...54.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.5
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...135.0
1000 s: (122.0...138.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.9...4.1
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PER
 Edition : 10.02.94
 Replaces : 09.92
 Test oil : ISO-4113
 Combination no. : 0 403 436 114
 Injection pump
 Pump designation : PES6MW100/320/3RS119
 4-1
 EP type number : 0 413 406 221
 Governor
 Governor design. : RGV300...1300MW108K
 Governor no. : 0 420 083 998

Customer-spec. information
 Customer : PERKINS

Engine : 180 TI

1st version kW : 134.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.30...3.40
 : (3.25...3.45)

Rack travel in mm : 12.00...14.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 14.10...14.20

Del.quantity cm3/ : 13.25...13.45

100 s: (12.95...13.75)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.5...6.7

Del.quantity cm3/ : 1.4...1.8

100 s: (1.1...2.0)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
 travel mm : 10.00...10.40

2nd speed rpm : 900
 travel mm : 6.40...6.60

3rd speed rpm : 480
 travel mm : 3.10...3.70

4th speed rpm : 300
 travel mm : 1.40...1.80

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1380

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 900

Del.quantity : 132.5...134.5

1000 : (129.5...137.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:
1st rack travel in: 13.15
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1470...1500
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.6

Testing:
Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.50...6.70

CONSTANT REGULATION

Speed rpm : 330...500

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 14.10...14.20
2nd speed rpm : 800
Rack travel in m: 13.10...13.30
3rd speed rpm : 500
Rack travel in m: 11.60...11.80
4th speed rpm : 1000
Rack travel in m: 13.45...13.75
5th speed rpm : 700
Rack travel in m: 12.60...12.90

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 1300
Pressure hPa : 900
Rack travel mm : 14.10...14.20

Measurement
Speed 1/min : 1300

1st pressure hPa : -
Rack travel in m: 9.20...9.40
2nd pressure hPa : 180

Rack travel in m: 10.40...10.50
3rd pressure hPa : 220
Rack travel in m: 11.05...11.35

START CUT-OUT

Speed 1/min : 240 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1300
Del.quantity cm3/ : 132.5...134.5
1000 s: (129.5...137.5)
Spread cm3 : 4.00
1000 s: (7.5)
Aneroid pressure h: 900
Speed rpm : 800
Del.quantity cm3/ : 124.0...128.0
1000 s: (121.0...131.0)
Spread cm3 : 6.0
1000 s: (9.0)
Aneroid pressure h: 900
Speed rpm : 500
Del.quantity cm3/ : 106.0...110.0
1000 s: (103.0...113.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 61.0...63.0
1000 s: (59.0...65.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.15
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...92.0
1000 s: (75.0...95.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.50...6.70
Del.quantity cm3/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:
Start-of-delivery blocking 46.5°
before start of delivery of cylinder 1



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 15.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 444 151
 Injection pump
 Pump designation : PES4MW100/72ORS1235
 EP type number : 0 413 404 121
 Governor
 Governor design. : RQV300...1300MW139
 Governor no. : 0 420 083 304

Customer-spec. information
 Customer : MB

Engine : OM364A

1st version kW : 79
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.65...3.75
 : (3.6...3.8)
 Rack travel in mm : 19...21

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.65...12.75

Del. quantity cm³/ : 8.2...8.4

100 s: (8.0...8.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.75...7.95

Del. quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.02...1.52

2nd speed rpm : 390
 travel mm : 2.14...2.64

3rd speed rpm : 550
 travel mm : 3.31...3.81

4th speed rpm : 1354
 travel mm : 10.06...10.56

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 113...121

Speed rpm : 1430
 Rack travel in mm : 9.5...10.5

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 700
 Del. quantity : 82.0...84.0
 1000 : (80.0...86.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 109...117

Testing:
1st rack travel in: 9.8
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 69...77

Testing:
Speed rpm : 200
Minimum rack trave: 9.5
Speed rpm : 300
Rack travel in mm : 7.75...7.95

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 13.40...13.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.1...12.2
2nd pressure hPa : 150
Rack travel in m: 12.55...12.75
3rd pressure hPa : 210
Rack travel in m: 12.95...13.15

START CUT-OUT

Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 1300
Del.quantity cm3/ : 82.0...84.0
1000 s: (80.0...86.0)
Spread cm3 : 3.50
1000 s: (6.00)
Aneroid pressure h: 700
Speed rpm : 600
Del.quantity cm3/ : 75.0...78.0
1000 s: (72.5...80.5)

Spread cm3 : 5.00
1000 s: (7.00)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 46.0...48.0
1000 s: (44.0...50.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.8
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.75...7.95
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 16.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 444 152
 Injection pump
 Pump designation : PES4MW100/720RS1235
 EP type number : 0 413 404 121
 Governor
 Governor design. : RQV300...1300MW140
 Governor no. : 0 420 083 305

Customer-spec. information
 Customer : MB

Engine : OM364A

1st version kW : 79
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.65...3.75
 : (3.6...3.8)

Rack travel in mm : 19...21

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.65...12.75

Del.quantity cm³/ : 8.2...8.4

100 s: (8.0...8.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.75...7.95

Del.quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.02...1.52

2nd speed rpm : 390

travel mm : 2.14...2.64

3rd speed rpm : 510

travel mm : 3.31...3.81

4th speed rpm : 1354

travel mm : 10.06...10.56

GUIDE SLEEVE POSITION

Control-lever position

Degree: 113...121

Speed rpm : 1430

Rack travel in mm : 9.5...10.5

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 82.0...84.0

1000 : (80.0...86.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 109...117

Testing:
1st rack travel in: 10.7
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1405...1435
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 69...77

Testing:
Speed rpm : 200
Minimum rack travel: 9.5
Speed rpm : 300
Rack travel in mm : 7.75...7.95
Rack travel in mm : 2.0
Speed rpm : 495...555

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 13.4...13.5

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.1...12.2
2nd pressure hPa : 150
Rack travel in m: 12.55...12.75
3rd pressure hPa : 210
Rack travel in m: 12.95...13.15

START CUT-OUT

Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 1300
Del.quantity cm³/ : 82.0...84.0
1000 s: (80.0...86.0)
Spread cm³ : 3.50
1000 s: (6.00)
Aneroid pressure h: 700
Speed rpm : 600

Del.quantity cm³/ : 75.0...78.0
1000 s: (72.5...80.5)
Spread cm³ : 5.00
1000 s: (7.00)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 46.0...48.0
1000 s: (44.0...50.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.75...7.95
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks: : MB #0240742702

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 15.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 444 153
 Injection pump
 Pump designation : PES4MW100/72ORS1127
 EP type number : 0 413 404 103
 Governor
 Governor design. : RQV300...1300MW48-3
 Governor no. : 0 420 083 110

Customer-spec. information
 Customer : MB

Engine : OM364A

1st version kW : 85
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.7...3.8
 : (3.65...3.85)

Rack travel in mm : 9...12

CO4

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.1...11.2

Del. quantity cm³/ : 8.0...8.2

100 s: (7.8...8.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...7.9

Del. quantity cm³/ : 0.9...1.3

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.15...1.65

2nd speed rpm : 363

travel mm : 1.8...2.3

3rd speed rpm : 490

travel mm : 2.68...3.18

4th speed rpm : 1345

travel mm : 8.34...8.84

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1330

Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del. quantity : 80.0...82.0

1000 : (78.0...84.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 108...116

Testing:
1st rack travel in: 10.1
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1430...1460
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 75...83

Testing:
Speed rpm : 200
Minimum rack trave: 9.5
Speed rpm : 300
Rack travel in mm : 7.8...7.9

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1300
Del.quantity cm3/ : 80.0...82.0
1000 s: (78.0...84.0)
Spread cm3 : 3.50
1000 s: (6.00)
Speed rpm : 750
Del.quantity cm3/ : 76.0...78.0
1000 s: (74.0...80.0)
Spread cm3 : 5.00
1000 s: (7.00)
Speed rpm : 585
Del.quantity cm3/ : 71.5...74.5
1000 s: (69.0...77.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.1
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

005

Speed rpm : 300
Rack travel in mm : 7.8...7.9
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 10.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 320
 Injection pump
 Pump designation : PES6MW100/72ORS1131
 EP type number : 0 413 406 123
 Governor
 Governor design. : RQV300...1300MW67-8
 Governor no. : 0 420 083 290

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 121.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 715 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00

C06

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.50...10.60

Del.quantity cm³/ : 8.8...9.0

100 s: (8.6...9.2)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.60...8.80

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 88.0...90.0

1000 : (86.0...92.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 109...117

Testing:

1st rack travel in: 9.50

Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1415...1445
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 200
Minimum rack trave: 7.00
Speed rpm : 300
Rack travel in mm : 5.40...5.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.20...11.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.20...9.30
2nd pressure hPa : 300
Rack travel in m: 9.70...9.90
3rd pressure hPa : 400
Rack travel in m: 10.40...10.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 1300
Del.quantity cm3/ : 88.0...90.0
1000 s: (86.0...92.0)

Spread cm3 : 5.00
1000 s: (7.0)

Aneroid pressure h: 700
Speed rpm : 850
Del.quantity cm3/ : 88.0...91.0
1000 s: (85.5...93.5)

Spread cm3 : 5.00
1000 s: (7.00)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/ : 49.0...51.0
1000 s: (47.0...53.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.40...5.60
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 15.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 321
 Injection pump
 Pump designation : PES6MW100/72ORS1131
 EP type number : 0 413 406 123
 Governor
 Governor design. : RGV300...1300MW50-31
 Governor no. : 0 420 083 294

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 121.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 715 089

Outside diameter
 x Wall thickness
 x Length mm : 8.00x2.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 10.50...10.60

Del. quantity cm³/ : 8.8...9.0

100 s : (8.6...9.2)

Spread cm³ : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.4...5.6

Del. quantity cm³/ : 1.0...1.4

100 s : (0.7...1.6)

Spread cm³ : 0.3

100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.15...1.65

2nd speed rpm : 510
 travel mm : 4.03...4.53

3rd speed rpm : 710
 travel mm : 4.91...5.41

4th speed rpm : 1354
 travel mm : 8.03...8.43

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300

Aneroid pressure h: 700
 Del. quantity : 88.0...90.0

1000 : (86.0...92.0)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 116...124

Testing:
 1st rack travel in: 9.50

Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1425...1455
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 84...92
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 200
Minimum rack travel: 7.00
Speed rpm : 300
Rack travel in mm : 5.40...5.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.20...11.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.20...9.30
2nd pressure hPa : 300
Rack travel in m: 9.70...9.90
3rd pressure hPa : 400
Rack travel in m: 10.40...10.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 1300
Del.quantity cm³/ : 88.0...90.0
1000 s: (86.0...92.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: 700
Speed rpm : 850
Del.quantity cm³/ : 88.0...91.0
1000 s: (85.5...93.5)
Spread cm³ : 5.00
1000 s: (7.00)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 49.0...51.0
1000 s: (47.0...53.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 80.0...90.0
1000 s: (77.0...93.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 15.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 324
 Injection pump
 Pump designation : PES6MW100/72ORS1131-
 1
 EP type number : 0 413 406 165
 Governor
 Governor design. : RQV300...1300MW136
 Governor no. : 0 420 083 300

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 177.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009
 Opening
 pressure, bar : 172...175
 Test lines : 1 680 715 089
 Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32
 Prestroke mm : 3.6...3.7
 : (3.55...3.75)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300
 Rack travel in mm : 14.4...14.5
 Del. quantity cm³/ : 11.4...11.6
 100 s : (11.2...11.8)
 Spread cm³ : 0.3
 100 s : (0.6)

2nd speed rpm : 300.0
 Rack travel in mm : 6.5...6.7
 Del. quantity cm³/ : 1.0...1.4
 100 s : (0.7...1.6)
 Spread cm³ : 0.3
 100 s : (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 0.89...1.39
 2nd speed rpm : 578
 travel mm : 4.46...4.96
 3rd speed rpm : 640
 travel mm : 4.85...5.35
 4th speed rpm : 1355
 travel mm : 9.93...10.43

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1300
 Aneroid pressure h: 1000
 Del. quantity : 114.0...116.0
 1000 : (112.0...118.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 110...118

Testing:

1st rack travel in: 13.4
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1445...1475
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 65...73
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.6

Testing:

Speed rpm : 200
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.5...6.7

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 14.4...14.5

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.95...11.05
2nd pressure hPa : 200
Rack travel in m: 11.25...11.45
3rd pressure hPa : 500
Rack travel in m: 13.95...14.15

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1300
Del.quantity cm3/ : 114.0...116.0
1000 s: (112.0...118.0)
Spread cm3 : 3.50
1000 s: (6.0)
Aneroid pressure h: 1000
Speed rpm : 750
Del.quantity cm3/ : 104.5...107.5
1000 s: (102.0...110.0)
Spread cm3 : 5.00
1000 s: (7.00)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 41.0...43.0
1000 s: (39.0...43.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.4
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.5...6.7
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 0
 Edition : 16.02.94
 Replaces : 04.89
 Test oil : ISO-4113
 Combination no. : 0 403 456 104
 Injection pump
 Pump designation : PES6MW100/321RS1180
 EP type number : 0 413 406 163
 Governor
 Governor design. : RQ250/1200MW84-1
 Governor no. : 0 420 082 037

Customer-spec. information
 Customer : MAN

Engine : D 0826 LUH

1st version kW : 157.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 15.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.6...11.7

Del.quantity cm³/ : 12.6...12.8

100 s: (12.3...13.1)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.2...5.4

Del.quantity cm³/ : 1.8...2.2

100 s: (1.55...2.45)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1320

travel mm : 8.6...9.0

2nd speed rpm : 1260

travel mm : 6.5...6.7

3rd speed rpm : 350

travel mm : 3.4...4.0

4th speed rpm : 250

travel mm : 1.5...2.1

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108...110

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 126.0...128.0

1000 : (123.0...131.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 26...34

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 10.6
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1305...1335
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 6...14
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.3

Testing:
Speed rpm : 100
Minimum rack trave: 7.3
Speed rpm : 250
Rack travel in mm : 5.2...5.4

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.6...11.7

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.30...9.40
2nd pressure hPa : 200
Rack travel in m: 9.6...9.7
3rd pressure hPa : 400
Rack travel in m: 10.9...11.2

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1000
Del.quantity cm3/ : 126.0...128.0
1000 s: (123.0...131.0)

Spread cm3 : 4.00
1000 s: (7.5)
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 123.0...127.0
1000 s: (120.0...130.0)
Spread cm3 : 6.00
1000 s: (9.00)
Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm3/ : 125.0...129.0
1000 s: (122.0...132.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.6
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...140.0
1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.2...5.4
Del.quantity cm3/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks: : MAN #2-7986

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 Q
 Edition : 16.02.94
 Replaces : 11.89
 Test oil : ISO-4113
 Combination no. : 0 403 456 105
 Injection pump
 Pump designation : PES6MW100/321RS1186
 EP type number : 0 413 406 168
 Governor
 Governor design. : RQ250/1200MW84-2
 Governor no. : 0 420 082 040

Customer-spec. information
 Customer : MAN

Engine : D 0826 LUH

1st version kW : 157.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 15.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 14.7...14.8

Del.quantity cm³/ : 12.6...12.8

100 s: (12.3...13.1)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 1.9...2.3

100 s: (1.65...2.55)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1280

travel mm : 9.5...9.9

2nd speed rpm : 1250

travel mm : 7.5...7.7

3rd speed rpm : 350

travel mm : 5.2...5.8

4th speed rpm : 250

travel mm : 2.3...2.7

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108...110

Speed rpm : 600

Rack travel in mm : 14.7...16.3

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 126.0...128.0

1000 : (123.0...131.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 38...46

Setting point:
Speed rpm : 600
Rack travel in mm : 15.5

Testing:
1st rack travel in: 13.8
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1285...1315
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:
Speed rpm : 100
Minimum rack travel: 7.5
Speed rpm : 250
Rack travel in mm : 5.4...5.6

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 14.8...14.9

Measurement:
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.2...12.3
2nd pressure hPa : 200
Rack travel in m: 12.7...12.8
3rd pressure hPa : 400
Rack travel in m: 13.8...14.1

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1000
Del.quantity cm³/ : 126.0...128.0
1000 s: (123.0...131.0)

Spread cm³ : 4.00
1000 s: (7.5)
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 126.0...130.0
1000 s: (123.0...133.0)
Spread cm³ : 6.00
1000 s: (9.00)
Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm³/ : 126.0...130.0
1000 s: (123.0...133.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.8
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...140.0
1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.4...5.6
Del.quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:
: MAN #3-7008

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 R
 Edition : 16.02.94
 Replaces : 11.89
 Test oil : ISO-4113
 Combination no. : 0 403 456 106
 Injection pump
 Pump designation : PES6MW100/321RS1190
 EP type number : 0 413 406 176
 Governor
 Governor design. : RQ250/1300MW84
 Governor no. : 0 420 082 029

Customer-spec. information
 Customer : MAN

Engine : D 0826 LF

1st version kw : 165.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35
 : (3.2...3.4)
 Rack travel in mm : 15.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 14.9...15.0

Del.quantity cm³/ : 13.3...13.5

100 s: (13.0...13.8)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 1.9...2.3

100 s: (1.65...2.55)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1440
 travel mm : 8.7...9.1

2nd speed rpm : 1360
 travel mm : 6.3...6.5

3rd speed rpm : 380
 travel mm : 4.1...4.7

4th speed rpm : 250
 travel mm : 1.5...1.9

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 108...110

Speed rpm : 600

Rack travel in mm : 19.2...20.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 133.0...135.0

1000 : (130.0...138.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 33...37

Setting point:
Speed rpm : 600
Rack travel in mm : 20

Testing:
1st rack travel in: 13.9
Speed rpm : 1345...1360
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1530
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 7...15
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:
Speed rpm : 100
Minimum rack trave: 7.0
Speed rpm : 250
Rack travel in mm : 5.4...5.6

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 14.9...15.0

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.9...12.0
2nd pressure hPa : 180
Rack travel in m: 12.6...12.7
3rd pressure hPa : 385
Rack travel in m: 13.7...14.0

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1000
Del.quantity cm3/ : 133.0...135.0
1000 s: (131.0...138.0)

Spread cm3 : 4.00
1000 s: (7.5)
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 132.0...136.0
1000 s: (129.0...139.0)
Spread cm3 : 6.00
1000 s: (9.00)
Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm3/ : 133.0...137.0
1000 s: (130.0...140.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.9
Speed rpm : 1345...1360

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...140.0
1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.4...5.6
Del.quantity cm3/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks: : MAN #3-7020

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 V
Edition : 16.02.94
Replaces : 11.91
Test oil : ISO-4113
Combination no. : 0 403 456 110
Injection pump
Pump designation : PES6MM100/321RS1201
EP type number : 0 413 406 190
Governor
Governor design. : RQ250/1200Mw84-3
Governor no. : 0 420 082 043

Customer-spec. information
Customer : MAN

Engine : D 0826 LF02

1st version kW : 169.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.5...3.6
: (3.45...3.65)

Rack travel in mm : 15.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.8...12.9

Del.quantity cm3/ : 14.1...14.3

100 s: (13.8...14.6)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.4...5.6

Del.quantity cm3/ : 1.8...2.0

100 s: (1.75...2.45)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1300

travel mm : 8.4...8.8

2nd speed rpm : 1260

travel mm : 6.6...6.8

3rd speed rpm : 345

travel mm : 4.0...4.6

4th speed rpm : 250

travel mm : 1.8...2.2

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108...110

Speed rpm : 600

Rack travel in mm : 18.2...19.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1000

Del.quantity : 141.0...143.0

1000 : (138.0...146.0)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 92...100

Setting point:

Speed rpm : 600
Rack travel in mm : 19

Testing:

1st rack travel in: 11.3
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1290...1330
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 69...77
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 7.0
Speed rpm : 250
Rack travel in mm : 5.4...5.6

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.65...12.95

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.0...10.1
2nd pressure hPa : 155
Rack travel in m: 10.3...10.4
3rd pressure hPa : 550
Rack travel in m: 11.9...12.2

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm³/ : 141.0...143.0
1000 s: (138.0...146.0)

Spread cm³ : 4.00
1000 s: (7.5)
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 139.0...143.0
1000 s: (136.0...146.0)
Spread cm³ : 6.00
1000 s: (9.00)
Aneroid pressure h: 1000
Speed rpm : 1200
Del.quantity cm³/ : 136.0...140.0
1000 s: (133.0...143.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.3
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 60.0...80.0
1000 s: (57.0...83.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.4...5.6
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7035

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,2 Q
 Edition : 16.02.94
 Replaces : 08.91
 Test oil : ISO-4113
 Combination no. : 0 403 456 111
 Injection pump
 Pump designation : PES6MW100/321RS1186
 EP type number : 0 413 406 186
 Governor
 Governor design. : RQ250/1200MW84-4
 Governor no. : 0 420 082 044

Customer-spec. information
 Customer : MAN

Engine : D 0826 LUH

1st version kw : 157.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.5...3.6
 : (3.45...3.65)

Rack travel in mm : 15.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.7...12.8

Del.quantity cm³/ : 13.3...13.5

100 s: (13.0...13.8)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 1.9...2.3

100 s: (1.65...2.35)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1280
 travel mm : 9.5...9.9

2nd speed rpm : 1250
 travel mm : 7.5...7.7

3rd speed rpm : 350
 travel mm : 5.2...5.8

4th speed rpm : 250
 travel mm : 2.2...2.6

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 108...110

Speed rpm : 600

Rack travel in mm : 14.7...16.3

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 133.0...135.0

1000 : (130.0...138.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 104...112

Setting point:
Speed rpm : 600
Rack travel in mm : 15.5

Testing:
1st rack travel in: 11.5
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1290...1330
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.6

Testing:
Speed rpm : 100
Minimum rack travel: 7.0
Speed rpm : 250
Rack travel in mm : 5.5...5.7

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.8...12.9

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.0...10.1
2nd pressure hPa : 200
Rack travel in m: 10.3...10.4
3rd pressure hPa : 500
Rack travel in m: 12.0...12.3

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 1000
Del.quantity cm3/ : 133.0...135.0
1000 s: (130.0...138.0)

Spread cm3 : 4.00
1000 s: (7.5)
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 131.5...135.5
1000 s: (128.5...138.5)
Spread cm3 : 6.00
1000 s: (9.00)
Aneroid pressure h: 1000
Speed rpm : 1200
Del.quantity cm3/ : 129.5...133.5
1000 s: (126.5...136.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.5
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 70.0...90.0
1000 s: (67.0...93.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.5...5.7
Del.quantity cm3/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks: : MAN #3-7008

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,3 A
 Edition : 16.02.94
 Replaces : 08.91
 Test oil : ISO-4113
 Combination no. : 0 403 456 112
 Injection pump
 Pump designation : PES6MW100/321RS1190
 EP type number : 0 413 406 176
 Governor
 Governor design. : RQ250/1100MW84-5
 Governor no. : 0 420 082 046

Customer-spec. information
 Customer : MAN

Engine : D 0826 LOH05
 1st version kw : 150.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35
 : (3.2...3.4)
 Rack travel in mm : 15.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 14.7...14.8

Del.quantity cm³/ : 13.2...13.4

100 s: (12.9...13.7)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 1.9...2.3

100 s: (1.65...2.35)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200

travel mm : 9.3...9.7

2nd speed rpm : 1100

travel mm : 7.3...7.5

3rd speed rpm : 470

travel mm : 6.7...7.3

4th speed rpm : 250

travel mm : 1.4...1.8

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108...110

Speed rpm : 600

Rack travel in mm : 16.0...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1000

Del.quantity : 132.0...134.0

1000 : (129.0...137.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 96...104

Setting point:

Speed rpm : 600
Rack travel in mm : 16.9

Testing:

1st rack travel in: 13.7
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 7.0
Speed rpm : 250
Rack travel in mm : 5.4...5.6

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 14.7...14.9

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.0...12.1
2nd pressure hPa : 250
Rack travel in m: 12.6...12.7
3rd pressure hPa : 450
Rack travel in m: 13.75...13.95

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)

Spread cm³ : 4.00
1000 s: (7.5)
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 130.5...134.5
1000 s: (127.5...137.5)
Spread cm³ : 6.00
1000 s: (9.00)
Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm³/ : 131.0...138.0
1000 s: (128.0...138.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.7
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 70.0...90.0
1000 s: (67.0...93.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.4...5.6
Del.quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7115

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,3 C
 Edition : 16.02.94
 Replaces : 06.91
 Test oil : ISO-4113
 Combination no. : 0 403 456 113
 Injection pump
 Pump designation : PES6MW100/321RS1210
 EP type number : 0 413 406 201
 Governor
 Governor design. : RQ250/1050MW84-6
 Governor no. : 0 420 082 049

Customer-spec. information
 Customer : MAN

Engine : D 0826 LUH250

1st version kW : 184.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.5...3.6
 : (3.3.45...3.65)
 Rack travel in mm : 9.0...12.0

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 14.0...14.1

Del.quantity cm³/ : 16.1...16.3

100 s: (15.8...16.6)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 4.9...5.1

Del.quantity cm³/ : 1.3...1.7

100 s: (1.05...1.95)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1125

travel mm : 7.3...7.7

2nd speed rpm : 1050

travel mm : 6.1...6.3

3rd speed rpm : 400

travel mm : 5.7...6.3

4th speed rpm : 250

travel mm : 2.5...2.9

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108...110

Speed rpm : 600

Rack travel in mm : 19.2...20.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1100

Del.quantity : 161.0...163.0

1000 : (158.0...166.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 95...103

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 13.0
Speed rpm : 1075...1090
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack travel: 7.5
Speed rpm : 250
Rack travel in mm : 4.9...5.1

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1100
Rack travel mm : 14.0...14.1

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.2...9.3
2nd pressure hPa : 150
Rack travel in m: 9.5...9.6
3rd pressure hPa : 700
Rack travel in m: 12.8...13.1

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1100
Speed rpm : 800
Del.quantity cm3/ : 161.0...163.0
1000 s: (158.0...166.0)

Spread cm3 : 4.00
1000 s: (7.5)
Aneroid pressure h: 1100
Speed rpm : 600
Del.quantity cm3/ : 161.5...165.5
1000 s: (158.5...168.5)
Spread cm3 : 6.00
1000 s: (9.00)
Aneroid pressure h: 1100
Speed rpm : 1050
Del.quantity cm3/ : 157.5...161.5
1000 s: (154.5...164.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 67.0...69.0
1000 s: (65.0...71.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.0
Speed rpm : 1075...1090

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 70.0...90.0
1000 s: (67.0...93.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.9...5.1
Del.quantity cm3/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks: : MAN #3-7127

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,3 D
 Edition : 16.02.94
 Replaces : 12.92
 Test oil : ISO-4113
 Combination no. : 0 403 456 115
 Injection pump
 Pump designation : PES6MW100/321RS1215
 EP type number : 0 413 406 205
 Governor
 Governor design. : RQ250/1200MW84-7
 Governor no. : 0 420 082 055

Customer-spec. information
 Customer : MAN

Engine : D 0826 LUH01

1st version kw : 199.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.5...3.6
 : (3.3.45...3.65)

Rack travel in mm : 9.0...12.0

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 14.2...14.3

Del.quantity cm³/ : 17.0...17.2

100 s: (16.7...17.5)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 6.8...7.2

Del.quantity cm³/ : 2.8...3.2

100 s: (2.55...3.45)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1320

travel mm : 9.3...9.7

2nd speed rpm : 1255

travel mm : 6.5...6.7

3rd speed rpm : 360

travel mm : 3.9...4.5

4th speed rpm : 250

travel mm : 1.6...2.0

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108...110

Speed rpm : 600

Rack travel in mm : 19.2...20.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1400

Del.quantity : 170.0...172.0

1000 : (167.0...175.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 95...103

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.2
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1340...1370
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 71...79
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 7.0

Testing:

Speed rpm : 100
Minimum rack travel: 8.5
Speed rpm : 250
Rack travel in mm : 6.8...7.2

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1400
Rack travel mm : 14.2...14.3

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.0...10.2
2nd pressure hPa : 270
Rack travel in m: 10.5...10.7
3rd pressure hPa : 850
Rack travel in m: 13.4...13.6

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400
Speed rpm : 1000
Del.quantity cm3/ : 170.0...172.0
1000 s: (167.0...175.0)

Spread cm3 : 4.00
1000 s: (7.5)
Aneroid pressure h: 1400
Speed rpm : 600
Del.quantity cm3/ : 176.0...180.0
1000 s: (173.0...183.0)
Spread cm3 : 6.00
1000 s: (9.00)
Aneroid pressure h: 1400
Speed rpm : 1200
Del.quantity cm3/ : 165.0...169.0
1000 s: (162.0...172.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 78.0...80.0
1000 s: (76.0...82.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack travel : 7.2
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 60.0...80.0
1000 s: (57.0...83.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.8...7.2
Del.quantity cm3/ : 28.0...32.0
1000 s: (25.5...34.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7126

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 7,3 D 1
 Edition : 16.02.94
 Replaces : 03.93
 Test oil : ISO-4113
 Combination no. : 0 403 456 116
 Injection pump
 Pump designation : PES6MW100/321RS1215
 EP type number : 0 413 406 205
 Governor
 Governor design. : RQ250/1200MW84-8
 Governor no. : 0 420 082 063

Customer-spec. information
 Customer : MAN

Engine : D 0826 LF 04

1st version kW : 199.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32
 Prestroke mm : 3.5...3.6
 : (3.3.45...3.65)
 Rack travel in mm : 9.0...12.0

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 14.05...14.25

Del.quantity cm³/ : 16.75...16.95

100 s: (16.45...17.25)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 2.1...2.5

100 s: (1.85...2.75)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1320

travel mm : 9.3...9.7

2nd speed rpm : 1255

travel mm : 6.5...6.7

3rd speed rpm : 360

travel mm : 3.9...4.5

4th speed rpm : 250

travel mm : 1.6...2.0

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 108...110

Speed rpm : 600

Rack travel in mm : 19.2...20.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1200

Del.quantity : 167.5...169.5

1000 : (164.5...172.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 91...99

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 12.6
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1340...1370
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.6

Testing:
Speed rpm : 150
Minimum rack trave: 7.5
Speed rpm : 250
Rack travel in mm : 5.5...5.7

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.6...13.7

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.5...9.6
2nd pressure hPa : 200
Rack travel in m: 10.0...10.1
3rd pressure hPa : 700
Rack travel in m: 12.3...12.6

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1000
Del.quantity cm3/ : 167.5...169.5
1000 s: (164.5...172.5)

Spread cm3 : 4.00
1000 s: (7.5)
Aneroid pressure h: 1200
Speed rpm : 600
Del.quantity cm3/ : 174.0...178.0
1000 s: (171.0...181.0)
Spread cm3 : 6.00
1000 s: (9.00)
Aneroid pressure h: 1200
Speed rpm : 1200
Del.quantity cm3/ : 163.0...167.0
1000 s: (160.0...170.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 77.0...79.0
1000 s: (75.0...81.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.6
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 70.0...90.0
1000 s: (67.0...93.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.5...5.7
Del.quantity cm3/ : 21.0...25.0
1000 s: (18.5...27.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks: : MAN #3-7137

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 16.02.94
 Replaces : 08.92
 Test oil : ISO-4113
 Combination no. : 0 403 456 119
 Injection pump
 Pump designation : PES6MM100/321RS1201
 EP type number : 0 413 406 190
 Governor
 Governor design. : RQ250/1200Mw84-10
 Governor no. : 0 420 082 065

Customer-spec. information
 Customer : MAN

Engine : D 0826 LF08/LUH05

1st version kW : 169.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.5...3.6
 : (3.3.45...3.65)
 Rack travel in mm : 9.0...12.0

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 13.2...13.3

Del.quantity cm³/ : 14.8...15.0

100 s: (14.5...15.3)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 1.6...2.0

100 s: (1.35...2.25)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1300

travel mm : 8.4...8.8

2nd speed rpm : 1260

travel mm : 6.6...6.8

3rd speed rpm : 345

travel mm : 4.0...4.6

4th speed rpm : 250

travel mm : 1.8...2.2

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 108...110

Speed rpm : 600

Rack travel in mm : 18.2...19.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1000

Del.quantity : 148.0...150.0

1000 : (145.0...153.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 92...100

Setting point:
Speed rpm : 600
Rack travel in mm : 19.0

Testing:
1st rack travel in: 11.8
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 69...77
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:
Speed rpm : 100
Minimum rack travel: 7.0
Speed rpm : 250
Rack travel in mm : 5.4...5.6

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 13.2...13.3

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.0...10.1
2nd pressure hPa : 150
Rack travel in m: 10.3...10.4
3rd pressure hPa : 550
Rack travel in m: 11.9...12.2

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm3/ : 148.0...150.0
1000 s: (145.0...153.0)

Spread cm3 : 4.00
1000 s: (7.5)
Aneroid pressure h: 1000
Speed rpm : 1200
Del.quantity cm3/ : 143.0...147.0
1000 s: (140.0...150.0)
Spread cm3 : 6.00
1000 s: (9.00)
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 147.0...151.0
1000 s: (144.0...154.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.8
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 60.0...80.0
1000 s: (57.0...83.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.4...5.6
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:
: MAN #3-7219

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 6,2 F
 Edition : 16.02.94
 Replaces : 09.92
 Test oil : ISO-4113
 Combination no. : 0 403 456 120
 Injection pump
 Pump designation : PES6MW100/321RS1210
 EP type number : 0 413 406 201
 Governor
 Governor design. : RQ250/1050MW84-11
 Governor no. : 0 420 082 066

Customer-spec. information
 Customer : MAN

Engine : D 0826 LUH06

1st version kW : 184.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32
 Prestroke mm : 3.5...3.6
 : (3.3.45...3.65)
 Rack travel in mm : 9.0...12.0

D04

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 14.0...14.1

Del.quantity cm³/ : 16.1...16.3

100 s: (15.8...16.6)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.0...5.2

Del.quantity cm³/ : 1.3...1.7

100 s: (1.05...1.95)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1125

travel mm : 7.3...7.7

2nd speed rpm : 1050

travel mm : 6.1...6.3

3rd speed rpm : 400

travel mm : 5.7...6.3

4th speed rpm : 250

travel mm : 2.5...2.9

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 108...110

Speed rpm : 600

Rack travel in mm : 19.2...20.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1100

Del.quantity : 161.0...163.0

1000 : (158.0...166.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 99...107

Setting point:

Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.00
Speed rpm : 1075...1090
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 76...84
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack travel: 6.5
Speed rpm : 250
Rack travel in mm : 5.0...5.2

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1100
Rack travel mm : 14.0...14.1

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.4...9.5
2nd pressure hPa : 150
Rack travel in m: 9.7...9.8
3rd pressure hPa : 700
Rack travel in m: 13.2...13.5

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 800
Del.quantity cm³/ : 161.0...163.0
1000 s: (158.0...166.0)

Spread cm³ : 4.00
1000 s: (7.5)
Aneroid pressure h: 1100
Speed rpm : 600
Del.quantity cm³/ : 161.0...165.0
1000 s: (158.0...168.0)
Spread cm³ : 6.00
1000 s: (9.00)
Aneroid pressure h: 1100
Speed rpm : 1050
Del.quantity cm³/ : 155.0...159.0
1000 s: (152.0...162.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 67.0...69.0
1000 s: (65.0...71.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.0
Speed rpm : 1075...1090

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 60.0...80.0
1000 s: (57.0...83.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.0...5.2
Del.quantity cm³/ : 13.0...17.0
1000 s: (10.5...19.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7220

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 6,2 F
 Edition : 16.02.94
 Replaces : 09.92
 Test oil : ISO-4113
 Combination no. : 0 403 456 121
 Injection pump
 Pump designation : PES6MW100/321RS1186
 EP type number : 0 413 406 168
 Governor
 Governor design. : RQ250/1200MW84-12
 Governor no. : 0 420 082 067

Customer-spec. information
 Customer : MAN

Engine : D 0826 LUH03

1st version kW : 157.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.5...3.6
 : (3.3.45...3.65)

Rack travel in mm : 9.0...12.0

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.7...12.8

Del.quantity cm³/ : 13.3...13.5

100 s: (13.1...13.7)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.5...5.7

Del.quantity cm³/ : 1.9...2.3

100 s: (1.65...2.55)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1280

travel mm : 9.5...9.9

2nd speed rpm : 1250

travel mm : 7.5...7.7

3rd speed rpm : 350

travel mm : 5.2...5.8

4th speed rpm : 250

travel mm : 2.2...2.6

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108...110

Speed rpm : 600

Rack travel in mm : 14.7...16.3

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1000

Del.quantity : 133.0...135.0

1000 : (131.0...137.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 104...112

Setting point:
Speed rpm : 600
Rack travel in mm : 15.5

Testing:
1st rack travel in: 11.50
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1290...1320
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 70...78
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.6

Testing:
Speed rpm : 100
Minimum rack travel: 7.0
Speed rpm : 250
Rack travel in mm : 5.5...5.7

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.8...12.9

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.0...10.1
2nd pressure hPa : 200
Rack travel in m: 10.3...10.4
3rd pressure hPa : 500
Rack travel in m: 12.0...12.3

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm3/ : 133.0...135.0
1000 s: (131.0...137.0)

Spread cm3 : 4.00
1000 s: (7.5)
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 131.5...135.5
1000 s: (128.5...138.5)
Spread cm3 : 6.00
1000 s: (9.00)
Aneroid pressure h: 1000
Speed rpm : 1200
Del.quantity cm3/ : 129.5...133.5
1000 s: (126.5...136.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.5
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 70.0...90.0
1000 s: (67.0...93.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.5...5.7
Del.quantity cm3/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks: : MAN #3-7221

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 16.02.94
 Replaces : 10.92
 Test oil : ISO-4113
 Combination no. : 0 403 456 122
 Injection pump
 Pump designation : PES6MW100/321RS1201
 EP type number : 0 413 406 150
 Governor
 Governor design. : RQ250/1200MW84-13
 Governor no. : 0 420 082 068

Customer-spec. information
 Customer : MAN

Engine : D 0826 LF08

1st version kW : 169.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.5...3.6
 : (3.3.45...3.65)

Rack travel in mm : 9.0...12.0

Firing order : 1-5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.8...12.9

Del.quantity cm³/ : 14.1...14.3

100 s: (13.8...14.6)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.4...5.6

Del.quantity cm³/ : 1.6...2.0

100 s: (1.35...2.25)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.56...1.76

2nd speed rpm : 359

travel mm : 3.6...3.8

3rd speed rpm : 520

travel mm : 6.9...7.1

4th speed rpm : 912

travel mm : 6.98...7.18

5th speed rpm : 1257

travel mm : 7.51...7.71

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108...110

Speed rpm : 600

Rack travel in mm : 14.7...16.3

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1000

Del.quantity : 141.0...143.0

1000 : (138.0...146.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 98...106

Setting point:

Speed rpm : 600
Rack travel in mm : 15.5

Testing:

1st rack travel in: 11.3
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 69...77
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 7.0
Speed rpm : 250
Rack travel in mm : 5.4...5.6

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.7...12.9

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.3...10.4
2nd pressure hPa : 150
Rack travel in m: 10.6...10.7
3rd pressure hPa : 550
Rack travel in m: 12.2...12.5

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 800

Del.quantity cm³/ : 141.0...143.0
1000 s: (138.0...146.0)

Spread cm³ : 4.00
1000 s: (7.5)

Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 138.0...142.0
1000 s: (135.0...145.0)

Spread cm³ : 6.00
1000 s: (9.00)

Aneroid pressure h: 1000
Speed rpm : 1000
Del.quantity cm³/ : 137.0...141.0
1000 s: (134.0...143.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.3
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 60.0...80.0
1000 s: (57.0...83.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.4...5.6
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7239

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 16.02.94
 Replaces : 12.92
 Test oil : ISO-4113
 Combination no. : 0 403 456 123
 Injection pump
 Pump designation : PES6MM100/321RS1201
 EP type number : 0 413 406 190
 Governor
 Governor design. : RQ250/1200MM84-14
 Governor no. : 0 420 082 069

Customer-spec. information
 Customer : MAN

Engine : D 0826 LF02/LF06

1st version kW : 169.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.5...3.6
 : (3.3.45...3.65)

Rack travel in mm : 9.0...12.0

Firing order : 1-5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.8...12.9

Del.quantity cm3/ : 14.1...14.3

100 s: (13.8...14.6)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.4...5.6

Del.quantity cm3/ : 1.6...2.0

100 s: (1.35...2.25)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.56...1.76

2nd speed rpm : 359
 travel mm : 3.6...3.8

3rd speed rpm : 520
 travel mm : 6.9...7.1

4th speed rpm : 912
 travel mm : 6.98...7.18

5th speed rpm : 1257
 travel mm : 7.51...7.71

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 108...110

Speed rpm : 600
 Rack travel in mm : 14.7...16.3

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800
 Aneroid pressure h: 1000
 Del.quantity : 141.0...143.0
 1000 : (138.0...146.0)

Spread cm3 : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 101...109

Setting point:
Speed rpm : 600
Rack travel in mm : 15.5

Testing:
1st rack travel in: 11.3
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 71...79
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:
Speed rpm : 100
Minimum rack travel: 7.0
Speed rpm : 250
Rack travel in mm : 5.4...5.6

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.7...12.9

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.3...10.4
2nd pressure hPa : 155
Rack travel in m: 10.6...10.7
3rd pressure hPa : 550
Rack travel in m: 12.2...12.5

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 800

Del.quantity cm3/ : 141.0...143.0
1000 s: (138.0...146.0)

Spread cm3 : 4.00
1000 s: (7.5)

Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 138.0...142.0
1000 s: (135.0...145.0)

Spread cm3 : 6.00
1000 s: (9.00)

Aneroid pressure h: 1000
Speed rpm : 1000
Del.quantity cm3/ : 137.0...141.0
1000 s: (134.0...143.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.3
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 60.0...80.0
1000 s: (57.0...83.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.4...5.6
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks: : MAN #3-7240

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 14.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 456 126
 Injection pump
 Pump designation : PES6MW100/321RS1201
 EP type number : 0 413 406 190
 Governor
 Governor design. : RQV250/1200MW83-4
 Governor no. : 0 420 083 307

Customer-spec. information
 Customer : MAN

Engine : D 0826 LFL06

1st version kW : 162.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 15.00...0.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.65...12.75

Del.quantity cm³/ : 13.9...14.1
 100 s: (13.6...14.4)

Spread cm³ : 0.4
 100 s: (0.7)

2nd speed rpm : 250.0
 Rack travel in mm : 5.6...5.8
 Del.quantity cm³/ : 1.6...2.0
 100 s: (1.35...2.25)
 Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 0.88...1.38
 2nd speed rpm : 333
 travel mm : 1.78...2.28
 3rd speed rpm : 440
 travel mm : 2.87...3.37
 4th speed rpm : 807
 travel mm : 5.58...6.08
 5th speed rpm : 1250
 travel mm : 10.19...10.69

GUIDE SLEEVE POSITION

Control-lever position
 Degree: 125...129
 Speed rpm : 1300
 Rack travel in mm : 11.0...12.0

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 800
 Aneroid pressure h: 1000
 Del.quantity : 139.0...141.0
 1000 : (136.0...144.0)

Spread cm3 : 4.00
1000 : (7.00)

RATED SPEED

1st version
Control lever
position degrees: 118...126

Testing:
1st rack travel in: 11.20
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1320...1350
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 73...81
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.7

Testing:
Speed rpm : 150
Minimum rack travel: 7.00
Speed rpm : 250
Rack travel in mm : 5.60...5.80

Aneroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.65...12.75

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.95...10.05
2nd pressure hPa : 155
Rack travel in m: 10.30...10.40
3rd pressure hPa : 550
Rack travel in m: 12.00...12.30

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 800
Del.quantity cm3/ : 139.0...141.0
1000 s: (136.0...144.0)
Spread cm3 : 4.00
1000 s: (7.5)

Aneroid pressure h: 1000
Speed rpm : 1200
Del.quantity cm3/ : 134.0...138.0
1000 s: (131.0...141.0)
Spread cm3 : 6.00
1000 s: (9.00)
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 135.0...139.0
1000 s: (132.0...142.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 60.0...80.0
1000 s: (57.0...83.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.60...5.80
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:
: MAN #3-7332

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 16.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 456 127
 Injection pump
 Pump designation : PES6MW100/321RS1201
 EP type number : 0 413 406 190
 Governor
 Governor design. : RQ250/1200MW84-15
 Governor no. : 0 420 082 072

Customer-spec. information
 Customer : MAN

Engine : D 0826 LFL06

1st version, kw : 162.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32
 Prestroke mm : 3.5...3.6
 : (3.3.45...3.65)
 Rack travel in mm : 9.0...12.0

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.65...12.75

Del.quantity cm³/ : 13.9...14.1

100 s: (13.6...14.4)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.6...5.8

Del.quantity cm³/ : 1.6...2.0

100 s: (1.35...2.25)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.43...1.63

2nd speed rpm : 364

travel mm : 3.58...3.78

3rd speed rpm : 530

travel mm : 6.9...7.1

4th speed rpm : 914

travel mm : 6.98...7.18

5th speed rpm : 1262

travel mm : 7.51...7.71

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108...110

Speed rpm : 600

Rack travel in mm : 14.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1000

Del.quantity : 139.0...141.0

1000 : (136.0...144.0)

Spread cm³ : 4.00
1000 s : (7.50)

RATED SPEED

1st version
Control Lever
position degrees: 98...106

Setting point:
Speed rpm : 600
Rack travel in mm : 16.5

Testing:
1st rack travel in: 11.2
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1320...1350
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 69...77
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.7

Testing:
Speed rpm : 100
Minimum rack travel: 7.0
Speed rpm : 250
Rack travel in mm : 5.6...5.8

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.65...12.75

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.95...10.05
2nd pressure hPa : 155
Rack travel in m: 10.3...10.4
3rd pressure hPa : 550
Rack travel in m: 12.0...12.3

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 800

Del.quantity cm³/ : 139.0...141.0
1000 s: (136.0...144.0)

Spread cm³ : 4.00
1000 s: (7.5)

Aneroid pressure h: 1000
Speed rpm : 1200
Del.quantity cm³/ : 134.0...138.0
1000 s: (131.0...141.0)

Spread cm³ : 6.00
1000 s: (9.00)

Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 135.0...142.0
1000 s: (132.0...142.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 74.0...76.0
1000 s: (72.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.2
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 60.0...80.0
1000 s: (57.0...83.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.6...5.8
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks: : MAN #3-7331

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CDC
 Edition : 16.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 466 133
 Injection pump
 Pump designation : PES6M100/120RS1137
 EP type number : 0 413 406 131
 Governor
 Governor design. : RSV450...1100MW2A319
 -20
 Governor no. : 0 420 085 212

Customer-spec. information
 Customer : CDC

Engine : 6CTA-8.3L

1st version kW : 188.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 017
 Opening
 pressure, bar : 207...210
 Test lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32
 Prestroke mm : 3.5...3.6
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 14.3...14.4
 Del. quantity cm³/ : 14.9...15.1
 100 s: (14.6...15.4)
 Spread cm³ : 0.4
 100 s: (0.7)
 2nd speed rpm : 425.0
 Rack travel in mm : 7.2...7.4
 Del. quantity cm³/ : 1.9...2.3
 100 s: (1.65...2.55)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 2.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del. quantity : 149.0...151.0
 1000 : (146.0...154.0)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Control lever
 position degrees: 92...100

Testing:

1st rack travel in: 13.30
 Speed rpm : 1160...1170
 2nd rack travel in: 4.00
 Speed rpm : 1235...1265
 4th rack travel in: 1350

Speed rpm : 0.30...1.70

LOW IDLE 1

Control Lever

position degrees: 68...76

Setting point w/out bumper spring

Speed rpm : 425

Rack travel in mm : 7.3

Testing:

Speed rpm : 100

Minimum rack trave: 19.0

Speed rpm : 425

Rack travel in mm : 7.2...7.4

SET IDLE AUXILIARY SPRING

Speed rpm : 425

Rack travel in mm : 7.7...7.9

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100

Del.quantity cm3/ : 149.0...151.0

1000 s: (146.0...154.0)

Spread cm3 : 4.00

1000 s: (7.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.3

Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 125.0...145.0

1000 s: (122.0...148.0)

LOW IDLE

Speed rpm : 425

Rack travel in mm : 7.2...7.4

Del.quantity cm3/ : 19.0...23.0

1000 s: (16.5...25.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

: CDC #3921149

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CDC
 Edition : 14.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 466 139
 Injection pump
 Pump designation : PES6MW100/120RS1148
 EP type number : 0 413 406 143
 Governor
 Governor design. : RSV400...750MW7A319-
 25
 Governor no. : 0 420 085 217

Customer-spec. information
 Customer : CDC

Engine : 6CTA

1st version kW : 180.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 017

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
 : (3.55...3.75)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 13.00...13.10

Del.quantity cm3/ : 17.95...18.15

100 s: (17.65...18.45)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 400.0

Rack travel in mm : 6.0...6.2

Del.quantity cm3/ : 1.6...1.8

100 s: (1.35...2.25)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 179.5...181.5

1000 : (176.5...184.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Testing:

1st rack travel in: 12.0

Speed rpm : 790...800

2nd rack travel in: 4.00

Speed rpm : 815...845

4th rack travel in: 1000

Speed rpm : 0.30...1.30

LOW IDLE 1

Control lever

position degrees: 70...78

Setting point w/out bumper spring

Speed rpm : 400

Rack travel in mm : 6.10

Testing:

Speed rpm : 100

Minimum rack trave: 19.0

Speed rpm : 400

Rack travel in mm : 6.00...6.20

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

START CUT-OUT

Speed 1/min : 100 (80)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm³/ : 179.5...181.5

1000 s: (176.5...184.5)

Spread cm³ : 4.00

1000 s: (7.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.0

Speed rpm : 790...800

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 125.0...145.0

1000 s: (122.0...148.0)

LOW IDLE

Speed rpm : 400

Rack travel in mm : 6.00...6.20

Del.quantity cm³/ : 16.0...20.0

1000 s: (13.5...22.5)

Spread cm³ : 3.50

1000 s: (5.50)

Remarks:

: CDC #3921083

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CDC
Edition : 14.02.94
Replaces : -
Test oil : ISO-4113

Combination no. : 0 403 466 144

Injection pump
Pump designation : PES6MW100/120RS1137-1
EP type number : 0 413 406 157
Governor
Governor design. : RSV450...1100MW2A319-29
Governer no. : 0 420 085 226

Customer-spec. information

Customer : CDC

Engine : 6CTA

1st version kw : 171.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 101

Opening pressure, bar : 207...210

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70
: (3.55...3.75)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 13.30...13.40

Del.quantity cm³/ : 12.80...13.00
100 s : (12.50...13.30)

Spread cm³ : 0.4
100 s : (0.7)

2nd speed rpm : 450.0
Rack travel in mm : 6.5...6.7
Del.quantity cm³/ : 1.8...2.2
100 s : (1.55...2.45)
Spread cm³ : 0.3
100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del.quantity : 128.0...130.0
1000 : (125.0...133.0)
Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 101...109

Testing:
1st rack travel in: 12.30
Speed rpm : 1150...1170
2nd rack travel in: 4.00

Speed rpm : 1260...1270
4th rack travel in: 1350
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position: degrees: 80...88
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 6.60

Testing:
Speed rpm : 100
Minimum rack trave: 19.0
Speed rpm : 450
Rack travel in mm : 6.50...6.70

SET IDLE AUXILIARY SPRING
Rack travel in mm : 4.00

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1100
Del.quantity cm3/ : 128.0...130.0
1000 s: (125.0...133.0)
Spread cm3 : 4.00
1000 s: (7.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.30
Speed rpm : 1150...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...140.0
1000 s: (117.0...143.0)

LOW IDLE

Speed rpm : 450
Rack travel in mm : 6.50...6.70
Del.quantity cm3/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:
: CDC #3926218

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CDC
 Edition : 14.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 466 145
 Injection pump
 Pump designation : PES6MW100/120RS1137-
 2
 EP type number : 0 413 406 180
 Governor
 Governor design. : RSV550...1100MW2A319
 -28
 Governor no. : 0 420 085 225

Customer-spec. information
 Customer : CDC

Engine : 6CTA

1st version kW : 191.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 14.40...14.50
 Del.quantity cm3/ : 14.5...14.7
 100 s: (14.2...15.0)
 Spread cm3 : 0.4
 100 s: (0.7)

2nd speed rpm : 550.0
 Rack travel in mm : 6.4...6.6
 Del.quantity cm3/ : 1.75...2.15
 100 s: (1.5...2.4)
 Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 145.0...147.0
 1000 : (142.0...150.0)
 Spread cm3 : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Control lever
 position degrees: 93...101

Testing:
 1st rack travel in: 13.40
 Speed rpm : 1160...1170
 2nd rack travel in: 4.00

Speed rpm : 1230...1240
4th rack travel in: 1350
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 71...79
Setting point w/out bumper spring
Speed rpm : 550
Rack travel in mm : 6.50

Testing:

Speed rpm : 100
Minimum rack travel: 19.0
Speed rpm : 550
Rack travel in mm : 6.40...6.60

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100
Del.quantity cm³/ : 145.0...147.0
1000 s: (142.0...150.0)
Spread cm³ : 4.00
1000 s: (7.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.40
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...140.0
1000 s: (117.0...143.0)

LOW IDLE

Speed rpm : 550
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 17.5...21.5
1000 s: (15.0...24.0)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: CDC #3925549

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CDC
 Edition : 14.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 466 146
 Injection pump
 Pump designation : PES6MW100/120RS1137-
 1
 EP type number : 0 413 406 157
 Governor
 Governor design. : RSV500...1100MW2A335
 -7
 Governor no. : 0 420 085 235

Customer-spec. information
 Customer : CDC

Engine : 6CTA

1st version kW : 172.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 101

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100
 Rack travel in mm : 13.30...13.40
 Del. quantity cm3/ : 13.15...13.35
 100 s: (12.85...13.65)
 Spread cm3 : 0.4
 100 s: (0.7)

2nd speed rpm : 500
 Rack travel in mm : 6.30...6.50
 Del. quantity cm3/ : 1.9...2.3
 100 s: (1.65...2.55)
 Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Aneroid pressure h: 1200
 Del. quantity : 131.5...133.5
 1000 : (128.5...136.5)
 Spread cm3 : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Control lever
 position degrees: 98...106

Testing:
 1st rack travel in: 12.30
 Speed rpm : 1150...1170

2nd rack travel in: 4.00
Speed rpm : 1260...1270
4th rack travel in: 1350
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever
position degrees: 77...85
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 6.40

Testing:
Speed rpm : 100
Minimum rack travel: 19.0
Speed rpm : 500
Rack travel in mm : 6.30...6.50

SET IDLE AUXILIARY SPRING
Rack travel in mm : 4.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 14.40...14.60

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.35...11.55
2nd pressure hPa : 275
Rack travel in m: 12.10...12.20
3rd pressure hPa : 425
Rack travel in m: 13.10...13.50

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 1100
Del.quantity cm3/ : 131.5...133.5
1000 s: (128.5...136.5)
Spread cm3 : 4.00
1000 s: (7.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.30
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...140.0
1000 s: (117.0...143.0)

LOW IDLE

Speed rpm : 500
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks: : CDC #3926219

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 10.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 037B
 Injection pump
 Pump designation : PES6MW100/72ORS1130
 EP type number : 0 413 406 122
 Governor
 Governor design. : RSV350...1300MWOA318
 Governor no. : 0 420 085 052

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 112.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 10.10...10.30

Del.quantity cm³/ : 6.85...7.15

100 s: (6.7...7.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 8.0...8.2

Del.quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 68.5...71.5

1000 : (67.0...74.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 800

Rack travel in mm : 0.65

Testing:

1st rack travel in: 9.20

Speed rpm : 1220...1230

2nd rack travel in: 4.00

Speed rpm : 1280...1310

4th rack travel in: 1325

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 75...83
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 8.1

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 8.00...8.20

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Dimension a mm : 2.00
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 10.10...10.30
2nd speed rpm : 800
Rack travel in m: 11.60...11.80
3rd speed rpm : 750
Rack travel in m: 11.60...11.80
4th speed rpm : 950
Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1200
Del.quantity cm3/ : 68.5...71.5
1000 s: (67.0...73.0)
Spread cm3 : 3.50
1000 s: (6.0)
Speed rpm : 800
Del.quantity cm3/ : 72.0...76.0
1000 s: (70.0...78.0)
Spread cm3 : 5.00
1000 s: (7.00)
Speed rpm : 750
Del.quantity cm3/ : 68.5...73.5
1000 s: (66.0...76.0)
Speed rpm : 900
Del.quantity cm3/ : 75.5...80.5
1000 s: (73.0...83.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 1220...1230

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 8.00...8.20
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 10.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 037C
 Injection pump
 Pump designation : PES6MW100/720RS1130
 EP type number : 0 413 406 122
 Governor
 Governor design. : RSV350...1300MWOA318
 Governor no. : 0 420 085 052

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 112.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 6.95...7.25

100 s: (6.8...7.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 8.0...8.2

Del.quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 69.5...72.5

1000 : (68.0...74.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 800

Rack travel in mm : 0.65

Testing:

1st rack travel in: 9.75

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1170...1200

4th rack travel in: 1225

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 75...83
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 8.1

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 8.00...8.20

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Dimension a mm : 2.00
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.70...10.80
2nd speed rpm : 750
Rack travel in m: 10.70...10.80
3rd speed rpm : 900
Rack travel in m: 10.65...10.85
4th speed rpm : 500
Rack travel in m: 10.65...10.85

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100
Del.quantity cm3/ : 69.5...72.5
1000 s: (68.0...74.0)
Spread cm3 : 3.50
1000 s: (6.0)
Speed rpm : 750
Del.quantity cm3/ : 57.0...61.0
1000 s: (55.0...63.0)
Spread cm3 : 5.00
1000 s: (7.00)
Speed rpm : 900
Del.quantity cm3/ : 65.0...70.0
1000 s: (62.5...72.5)
Speed rpm : 500
Del.quantity cm3/ : 38.0...42.5
1000 s: (35.5...45.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.75
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 8.00...8.20
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
 Edition : 10.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 0370
 Injection pump
 Pump designation : PES6MW100/720RS1130
 EP type number : 0 413 406 122
 Governor
 Governor design. : RSV350...1300MWOA318
 Governor no. : 0 420 085 052

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 112.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 11.45...11.55

Del.quantity cm³/ : 8.15...8.45

100 s: (8.0...8.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 8.0...8.2

Del.quantity cm³/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 81.5...84.5

1000 : (80.0...86.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 800

Rack travel in mm : 0.65

Testing:

1st rack travel in: 10.50

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1245...1275

4th rack travel in: 1350

Speed rpm : 0.30...1.70

LOW IDLE 1

Control Lever
position degrees: 75...83
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 8.1

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 350
Rack travel in mm : 8.00...8.20

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Dimension a mm : 2.00
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 11.45...11.55
2nd speed rpm : 750
Rack travel in m: 11.95...12.05
3rd speed rpm : 950
Rack travel in m: 11.65...11.85
4th speed rpm : 500
Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1150
Del.quantity cm3/ : 81.5...84.5
1000 s: (80.0...86.0)
Spread cm3 : 3.50
1000 s: (6.0)
Speed rpm : 750
Del.quantity cm3/ : 75.5...79.5
1000 s: (73.5...81.5)
Spread cm3 : 5.00
1000 s: (7.00)
Speed rpm : 950
Del.quantity cm3/ : 79.0...84.0
1000 s: (76.5...86.5)
Speed rpm : 500
Del.quantity cm3/ : 65.5...70.5
1000 s: (63.0...73.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 8.00...8.20
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 H 1
 Edition : 14.02.94
 Replaces : 05.91
 Test oil : ISO-4113
 Combination no. : 0 403 476 080A
 Injection pump
 Pump designation : PES6MW100/720RS1191
 EP type number : 0 413 406 179
 Governor
 Governor design. : RSV350...1300MWOA329-6
 Governor no. : 0 420 085 136

Customer-spec. information
 Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 165.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150
 Rack travel in mm : 14.80...14.90
 Del. quantity cm³/ : 12.20...12.40
 100 s: (12.0...12.6)
 Spread cm³ : 0.3
 100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 6.0...6.2
 Del. quantity cm³/ : 0.9...1.3
 100 s: (0.6...1.5)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Aneroid pressure h: 1000
 Del. quantity : 122.0...124.0
 1000 : (120.0...126.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 105...113

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.65

Testing:
 1st rack travel in: 13.85
 Speed rpm : 1180...1190
 2nd rack travel in: 4.00

Speed rpm : 1270...1310
4th rack travel in: 1350
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 75...83
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 350
Rack travel in mm : 6.00...6.20

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 14.80...14.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.10...12.30
2nd pressure hPa : 350
Rack travel in m: 12.90...13.10
3rd pressure hPa : 500
Rack travel in m: 13.90...14.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1150
Del.quantity cm³/ : 122.0...124.0
1000 s: (120.0...126.0)
Spread cm³ : 3.50
1000 s: (6.0)
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm³/ : 118.5...121.5
1000 s: (116.0...124.0)
Spread cm³ : 5.00
1000 s: (7.00)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 69.0...71.0
1000 s: (67.0...73.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.85
Speed rpm : 1180...1190

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 100.0...110.0
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.00...6.20
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.00)

Remarks:

* Read off speed set under 1.
Add 80...88 min⁻¹ to this speed. The
control-rod travel under 2. must be
attained with the calculated speed
profile.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 14.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 476 134
 Injection pump
 Pump designation : PES6MW100/320RS1236
 EP type number : 0 413 406 231
 Governor
 Governor design. : RSV325...750MW1A802-
 3
 Governor no. : 0 420 085 237

Customer-spec. information
 Customer : MAN

Engine : D 0826 LXE20
 1st version kw : 151.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 419 992 198
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 101
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6

Test lines : 1 680 750 008
 Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

E06

Prestroke mm : 3.20...3.30
 : (3.15...3.35)
 Rack travel in mm : 14.0...16.0
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700
 Rack travel in mm : 13.60...13.80
 Del.quantity cm3/ : 19.1...19.3
 100 s: (18.8...19.6)
 Spread cm3 : 0.4
 100 s: (0.7)

2nd speed rpm : 325.0
 Rack travel in mm : 6.60...7.40
 Del.quantity cm3/ : 6.3...6.7
 100 s: (6.15...6.95)
 Spread cm3 : 0.6
 100 s: (0.9)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: -
 Del.quantity : 191.0...193.0
 1000 : (188.0...196.0)
 Spread cm3 : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Control lever
 position degrees: 84...92

Setting point:
 Speed rpm : 800

Rack travel in mm : 0.65

Testing:

1st rack travel in: 12.70
Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 780...788
4th rack travel in: 950
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 7.0
Speed rpm : 325
Rack travel in mm : 6.60...7.40
Rack travel in mm : 2.00
Speed rpm : 310...370

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700
Del.quantity cm3/ : 191.0...193.0
1000 s: (188.0...196.0)
Spread cm3 : 4.00
1000 s: (7.5)
Speed rpm : 784
Del.quantity cm3/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm3 : 3.50
1000 s: (6.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 205.0...225.0
1000 s: (202.0...228.0)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 6.60...7.40
Del.quantity cm3/ : 63.0...67.0
1000 s: (61.5...69.5)
Spread cm3 : 6.00
1000 s: (9.00)

Remarks:

: MAIN #3-7231

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 14.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 486 105
 Injection pump
 Pump designation : PES6MW100/321RS1231
 EP type number : 0 413 406 225
 Governor
 Governor design. : RSV300...1100MWOA343
 -1
 Governor no. : 0 420 085 209

Customer-spec. information
 Customer : MAN

Engine : D0826LE 522

1st version kW : 154.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

E08

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.00...12.10

Del. quantity cm³/ : 14.2...14.4

100 s: (13.9...14.7)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 4.9...5.1

Del. quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1000

Del. quantity : 142.0...144.0

1000 : (139.0...147.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Setting point:

Speed rpm : 800

Rack travel in mm : 0.65

Testing:

1st rack travel in: 11.00
Speed rpm : 1150...1160
2nd rack travel in: 4.00
Speed rpm : 1230...1260
4th rack travel in: 1350
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 72...80
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 300
Rack travel in mm : 4.90...5.10

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.00...12.10
2nd speed rpm : 900
Rack travel in m: 12.30...12.40
3rd speed rpm : 600
Rack travel in m: 12.30...12.50

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.30...12.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.40...9.50
2nd pressure hPa : 150
Rack travel in m: 9.70...9.80
3rd pressure hPa : 600
Rack travel in m: 11.60...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm3/ : 142.0...144.0
1000 s: (139.0...146.0)

Spread cm3 : 4.00
1000 s: (7.5)
Aneroid pressure h: 1000
Speed rpm : 900
Del.quantity cm3/ : 144.0...148.0
1000 s: (141.0...151.0)
Spread cm3 : 6.00
1000 s: (9.00)
Aneroid pressure h: 1000
Speed rpm : 600
Del.quantity cm3/ : 148.0...152.0
1000 s: (145.0...155.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 75.0...77.0
1000 s: (73.0...79.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 120.0...130.0
1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.90...5.10
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7263

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 14.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 486 106
 Injection pump
 Pump designation : PES6MW100/321RS1232
 EP type number : 0 413 406 226
 Governor
 Governor design. : RSV300...1150MWOA343
 -2
 Governor no. : 0 420 085 210

Customer-spec. information
 Customer : MAN

Engine : D0826LE 523

1st version kW : 154.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 18...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150
 Rack travel in mm : 13.00...13.10
 Del. quantity cm³/ : 15.9...16.1
 100 s: (15.6...16.4)
 Spread cm³ : 0.4
 100 s: (0.7)

2nd speed rpm : 300.0
 Rack travel in mm : 5.4...5.6
 Del. quantity cm³/ : 1.3...1.7
 100 s: (1.15...1.95)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Aneroid pressure h: 1200
 Del. quantity : 159.0...161.0
 1000 : (156.0...164.0)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Control lever
 position degrees: 100...108

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.65

Testing:

1st rack travel in: 12.00
Speed rpm : 1200...1210
2nd rack travel in: 4.00
Speed rpm : 1290...1320
4th rack travel in: 1400
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 73...81
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 300
Rack travel in mm : 5.4...5.6

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 13.0...13.10
2nd speed rpm : 925
Rack travel in m: 13.30...13.50
3rd speed rpm : 600
Rack travel in m: 13.30...13.50
4th speed rpm : 500
Rack travel in m: 9.40...9.50

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.00...13.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.40...9.50
2nd pressure hPa : 150
Rack travel in m: 9.70...9.80
3rd pressure hPa : 750
Rack travel in m: 12.20...12.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 1150

Del.quantity cm³/ : 159.0...161.0
1000 s: (156.0...164.0)
Spread cm³ : 4.00
1000 s: (7.5)
Aneroid pressure h: 1200
Speed rpm : 925
Del.quantity cm³/ : 160.0...164.0
1000 s: (157.0...167.0)
Spread cm³ : 6.00
1000 s: (9.00)
Aneroid pressure h: 1200
Speed rpm : 600
Del.quantity cm³/ : 158.0...162.0
1000 s: (155.0...165.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 75.0...77.0
1000 s: (73.0...79.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1200...1210

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 120.0...130.0
1000 s: (117.0...133.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 13.0...17.0
1000 s: (11.5...19.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7262

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 14.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 486 107
 Injection pump
 Pump designation : PES6MW100/321RS1208
 EP type number : 0 413 406 199
 Governor
 Governor design. : RSV350...900MW1A360
 Governor no. : 0 420 085 238

Customer-spec. information
 Customer : MAN

Engine : D0826LE 101

1st version kW : 140.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 18...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00

E12

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 870
 Rack travel in mm : 13.65...13.75
 Del. quantity cm³/ : 13.7...13.9
 100 s : (13.4...14.2)
 Spread cm³ : 0.4
 100 s : (0.7)

2nd speed rpm : 350.0
 Rack travel in mm : 4.4...4.6
 Del. quantity cm³/ : 1.1...1.5
 100 s : (0.85...1.75)
 Spread cm³ : 0.3
 100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 3.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 870
 Del. quantity : 137.0...139.0
 1000 : (134.0...142.0)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Control lever
 position degrees: 87...95

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.65

Testing:
 1st rack travel in: 12.70
 Speed rpm : 915...925

2nd rack travel in: 4.00
Speed rpm : 955...965
4th rack travel in: 1050
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 4.4...4.6

SET IDLE AUXILIARY SPRING

Speed rpm : 500
Rack travel in mm : 4.9...5.1

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 870
Del.quantity cm3/ : 137.0...139.0
1000 s: (134.0...142.0)
Spread cm3 : 4.00
1000 s: (7.5)
Speed rpm : 500
Del.quantity cm3/ : 126.0...130.0
1000 s: (123.0...133.0)
Spread cm3 : 6.00
1000 s: (9.00)
Speed rpm : 700
Del.quantity cm3/ : 134.0...138.0
1000 s: (131.0...141.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (127.0...153.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.4...4.6

Del.quantity cm3/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7310

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 15.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 486 108
 Injection pump
 Pump designation : PES6MW100/321RS1208
 EP type number : 0 413 406 199
 Governor
 Governor design. : RSV350...900MW1A360-
 1
 Governor no. : 0 420 085 239

Customer-spec. information
 Customer : MAN

Engine : D0826LE 102

1st version kW : 154.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 18...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 870

Rack travel in mm : 14.75...14.85

Del.quantity cm³/ : 15.6...15.8

100 s: (15.3...16.1)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 350.0

Rack travel in mm : 4.4...4.6

Del.quantity cm³/ : 1.1...1.5

100 s: (0.85...1.75)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 870

Del.quantity : 156.0...158.0

1000 : (153.0...161.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 87...95

Setting point:

Speed rpm : 800

Rack travel in mm : 0.65

Testing:

1st rack travel in: 13.80

Speed rpm : 915...925
2nd rack travel in: 4.00
Speed rpm : 965...975
4th rack travel in: 1050
Speed rpm : 0.30...1.70

LOW IDLE 1

Control Lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 4.4...4.6

SET IDLE AUXILIARY SPRING

Speed rpm : 350
Rack travel in mm : 4.9...5.1

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 870
Del.quantity cm3/ : 156.0...158.0
1000 s: (153.0...161.0)
Spread cm3 : 4.00
1000 s: (7.5)
Speed rpm : 500
Del.quantity cm3/ : 147.0...151.0
1000 s: (144.0...153.0)
Spread cm3 : 6.00
1000 s: (9.00)
Speed rpm : 700
Del.quantity cm3/ : 156.0...160.0
1000 s: (153.0...163.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.80
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (127.0...153.0)

LOW IDLE

Speed rpm : 350

E15

Rack travel in mm : 4.4...4.6
Del.quantity cm3/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7311

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN
 Edition : 15.02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 486 109
 Injection pump
 Pump designation : PES6MW100/321RS1208
 EP type number : 0 413 406 199
 Governor
 Governor design. : RSV350...1000MW1A360
 -2
 Governor no. : 0 420 085 240

Customer-spec. information
 Customer : MAN

Engine : D0826LE 103

1st version kw : 161.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 18...42

Overflow valve
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
 x wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 970
 Rack travel in mm : 14.75...14.85
 Del. quantity cm³/ : 14.8...15.0
 100 s: (14.5...15.3)
 Spread cm³ : 0.4
 100 s: (0.7)

2nd speed rpm : 350.0
 Rack travel in mm : 4.4...4.6
 Del. quantity cm³/ : 1.1...1.5
 100 s: (0.85...1.75)
 Spread cm³ : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension
 Click setting x : 3.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 970
 Del. quantity : 148.0...150.0
 1000 : (145.0...153.0)
 Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
 Control lever
 position degrees: 87...95

Setting point:
 Speed rpm : 800
 Rack travel in mm : 0.65

Testing:
 1st rack travel in: 13.80

Speed rpm : 1020...1030
2nd rack travel in: 4.00
Speed rpm : 1080...1090
4th rack travel in: 1150
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 64...72
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 300
Rack travel in mm : 4.4...4.6

SET IDLE AUXILIARY SPRING

Speed rpm : 350
Rack travel in mm : 4.9...5.1

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 970
Del.quantity cm³/ : 148.0...150.0
1000 s: (145.0...153.0)
Spread cm³ : 4.00
1000 s: (7.5)
Speed rpm : 500
Del.quantity cm³/ : 139.0...143.0
1000 s: (136.0...146.0)
Spread cm³ : 6.00
1000 s: (9.00)
Speed rpm : 700
Del.quantity cm³/ : 147.0...151.0
1000 s: (145.0...153.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.80
Speed rpm : 1020...1030

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (127.0...153.0)

LOW IDLE

Speed rpm : 350

E17

Rack travel in mm : 4.4...4.6
Del.quantity cm³/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7312

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 085 362
 Injection pump
 Pump designation : PES6A100D32G/3RS2E27
 EP type number : 9 400 084 030
 Governor
 Governor design. : RQV350...1100AB1276R
 Governor no. : 9 420 080 354

Customer-spec. information
 Customer : CUMMINS

Engine : 6 CT 8.3

1st version kW : 160.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness : 6.00x2.00x600
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80
 : (2.65...2.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
 & maximum rack tra: 3.50...4.50
 Difference ° CS : 2

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.10...12.20

Del. quantity cm³/ : 12.9...13.1

100 s: (12.7...13.3)

Spread cm³ : 0.3

100 s: (0.8)

2nd speed rpm : 350.0

Rack travel in mm : 4.9...5.1

Del. quantity cm³/ : 0.7...1.1

100 s: (0.4...1.3)

Spread cm³ : 0.5

100 s: (0.9)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1150

travel mm : 7.40...7.60

2nd speed rpm : 250

travel mm : 0.40...0.90

3rd speed rpm : 350

travel mm : 1.60...2.10

4th speed rpm : 600

travel mm : 4.00...4.50

5th speed rpm : 1350

travel mm : 9.10...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1240

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 1000
Del. quantity : 129.0...131.0
1000 : (127.0...133.0)
Spread cm³ : 3.50
1000 : (8.00)

RATED SPEED

1st version
Control lever
position degrees: 109...117

Setting point:
Speed rpm : 1240
Rack travel in mm : 16.5

Testing:
1st rack travel in: 11.10
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1285...1315
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 68...76
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION
Speed rpm : 300...500

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.10...12.20
2nd speed rpm : 700
Rack travel in m: 12.10...12.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.10...12.20

Measurement
Speed 1/min : 500
2nd pressure hPa : 320
Rack travel in m: 0.60...0.70
3rd pressure hPa : 600
Rack travel in m: 2.00...2.20

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1000
Speed rpm : 700
Del. quantity cm³/ : 133.5...137.5
1000 s: (131.5...139.5)
Speed rpm : 500
Del. quantity cm³/ : 94.5...96.5
1000 s: (92.5...98.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 164.0...180.0
1000 s: (161.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 4.90...5.10
Del. quantity cm³/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm³ : 5.50
1000 s: (9.00)

Remarks:
: C..D.C. # 335 5245

Start-of-delivery mark 9° cam angle
after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 02.94
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 087 481
 Injection pump
 Pump designation : PES6P120A320/3RS3264
 EP type number : 9 400 087 075
 Governor
 Governor design. : RQV350/870...900PA11
 11
 Governor no. : 9 420 080 356

Customer-spec. information
 Customer : CUMMINS

Engine : 6CTA

1st version kW : 207.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.45...3.55
 : (3.40...3.60)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 870

Rack travel in mm : 12.30...12.40

Del.quantity cm³/ : 21.5...21.7

100 s: (21.2...22.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 6.1...6.3

Del.quantity cm³/ : 0.7...1.3

100 s: (0.4...1.6)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 910
 travel mm : 5.50...6.00

2nd speed rpm : 250
 travel mm : 0.50...1.00

3rd speed rpm : 400
 travel mm : 2.50...3.00

4th speed rpm : 700
 travel mm : 4.40...4.60

5th speed rpm : 980
 travel mm : 8.60...9.10

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 945

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 870

Del.quantity : 215.0...217.0

1000 : (212.0...220.0)

Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 105...113

Setting point:

Speed rpm : 945
Rack travel in mm : 16.5
4th rack travel in: 1050
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 69...77
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.2

Testing:

Speed rpm : 100
Minimum rack travel: 10.00
Speed rpm : 350
Rack travel in mm : 6.10...6.30

CONSTANT REGULATION

Speed rpm : 300...450

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 870
Rack travel in m: 12.30...12.40
2nd speed rpm : 500
Rack travel in m: 12.30...12.40

START CUT-OUT

Speed 1/min : 270 (290)

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 275.0...295.0
1000 s: (271.0...299.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.10...6.30
Del.quantity cm³/ : 7.0...13.0
1000 s: (4.0...16.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: C.D.C. # 335 5248
Sliding sleeve pre-travel = 6.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM
 Edition : 02.94
 Replaces : ..
 Test oil : ISO-4113
 Combination no. : 9 400 087 482
 Injection pump
 Pump designation : PES6P120A320/3RS3254
 EP type number : 9 400 087 075
 Governor
 Governor design. : RQV350/720...750PA11
 12
 Governor no. : 9 420 080 357

Customer-spec. information
 Customer : CUMMINS

Engine : 6CTA

1st version kW : 180.0
 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 105

Opening
 pressure, bar : 207...210

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.45...3.55
 : (3.40...3.60)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 720

Rack travel in mm : 11.80...11.90

Del.quantity cm³/ : 21.4...21.6

100 s: (21.1...21.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.7...5.9

Del.quantity cm³/ : 0.9...1.5

100 s: (0.6...1.8)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 820

travel mm : 8.00...8.50

2nd speed rpm : 300

travel mm : 0.80...1.30

3rd speed rpm : 420

travel mm : 3.10...3.60

4th speed rpm : 600

travel mm : 4.40...4.60

5th speed rpm : 770

travel mm : 8.00...8.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 805

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 720

Del.quantity : 214.0...216.0

1000 : (211.0...219.0)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 102...110

Setting point:
Speed rpm : 805
Rack travel in mm : 16.5
4th rack travel in: 900
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 67...75
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.8

Testing:

Speed rpm : 100
Minimum rack travel: 10.00
Speed rpm : 350
Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

Speed rpm : 300...430

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 720
Rack travel in m: 11.80...11.90
2nd speed rpm : 500
Rack travel in m: 11.80...11.90

START CUT-OUT

Speed 1/min : 270 (290)

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 270.0...290.0
1000 s: (266.0...294.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.70...5.90
Del.quantity cm3/ : 9.0...15.0
1000 s: (6.0...18.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: C.D.C. # 335 5249
Start-of-delivery mark/lock = 8.0°
angular displacement of the cam after
start of delivery of cylinder 1.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA
Edition : 02.9/4
replaces : 13.07.88
Calibrating oil : ISO-4113
Injection pump : VE4/10F2100L168-2
Type number : 0 460 404 051
Customer Part-No. :

Customer-specific information
Customer : VM

Engine : HR 492 HT

Power KW: 76
Speed 1/min: 2100

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 800
Setting value mm: 4.60...5.00

Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 300
Setting value bar: 4.80...5.40
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 800
Del. quantity cm3/
1000S.: 56.50...57.50

Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 45.50...46.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2300
Charge press hPa: 800
Del. quantity cm3/
1000S.: 27.00...33.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 37.00...67.00
mind 1000S.: 37.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
 Charge press hPa: -
 Inj.-qty. cm³/
 difference 1000S.: - 8.0...-14.0 "
 Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1500
 Charge press hPa: -
 TD-travel
 difference mm: - 0.9...1.1 "
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
 Charge press hPa: 800
 TD travel mm: 7.60...8.40
 mm: (7.30...8.70)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1500
 Charge press hPa: 800
 TD travel mm: 4.60...5.00
 mm: (4.10...5.50)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1000
 Charge press hPa: 800
 TD travel mm: 1.60...2.40
 mm: (1.30...2.70)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100
 Charge press. hPa: 800
 Supply-pump
 pressure bar: 6.90...7.50

Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 Charge press. hPa: 800
 Supply-pump
 pressure bar: 4.80...5.40

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 600
 Charge press. hPa: 800
 Supply-pump
 pressure bar: 1.80...2.40

Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Overflow : 41.70...86.20
 quantity cm³/10s: (26.70...101.20)
 2nd speed 1/min: 2100
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700
 Charge-air pressure-setting
 point hPa: 450
 LDA-stroke mm: 6.1
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 52.00...53.00
 1000S.: (50.00...55.00)

3rd speed 1/min: 2450
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 1.00...9.00
 1000S.: (0.50...9.50)

5th speed 1/min: 2300
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 27.00...33.00
 1000S.: (26.00...34.00)

9th speed 1/min: 2100
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 48.90...51.90
 1000S.: (47.40...53.40)

12th speed 1/min: 1500
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12
 Del. quynity cm³/: 56.50...57.50
 1000S.: (55.00...59.00)

18th speed 1/min: 600
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 45.50...46.50
 1000S.: (43.50...48.50)

20th speed 1/min: 600
 Charge press. hPa: 800
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 58.50...61.50
1000S.: -

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.00...17.00
1000S.: (10.00...20.00)

Dispersion cm³/: 3.0
1000S.: (3.0)

2nd speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...2.00
1000S.: (0.00...2.00)

3rd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.50...8.50
1000S.: (0.50...10.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
Charge press. hPa: -
Inj.-qty. cm³/ : -3.0...-5.0 #
difference 1000S.: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1500
Charge press. hPa: -
Supply pump-
pressure : -0.1...0.3 #
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...65.00
1000S.: (45.00...65.00)

2nd speed 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...57.00
1000S.: (37.00...57.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...67.00
1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.6...6.0
MS mm: 0.6...1.0
SVS max. mm: 2.3
LDA stroke mm: 6.1
XK mm: 17.0...19.0
XL mm: 9.4...12.8

Remarks:

:
Operate control lever after each
manifold-pressure compensator pressure
change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA
Edition : 02.94
replaces : 14.02.92
Calibrating oil : ISO-4113
Injection pump : VE4/10F1600L352
Type number : 0 460 404 061
Customer Part-No. :

Customer-specific information
Customer : VM

Engine : HR 494 HP

Power KW: 53
Speed 1/min: 1600

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Setting value mm: 1.90...2.30
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1200
Setting value bar: 4.80...5.40
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200
Del. quantity cm3/
1000S.: 43.50...44.50
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.5
1000S.: (3.5)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 11.50...15.50
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.5
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1650
Del. quantity cm3/
1000S.: 27.00...33.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 45.00...85.00
mind 1000S.: 45.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1200
Inj.-qty. cm3/
difference 1000S.: - 10.0...-18.0 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1200
TD-travel
difference mm: -0.9...-1.1 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1600
TD travel mm: 3.60...4.40
mm: (3.30...4.70)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1200
TD travel mm: 1.90...2.30
mm: (1.40...2.80)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
TD travel mm: 0.70...1.50
mm: (0.40...1.80)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

2nd speed 1/min: 600
Supply-pump
pressure bar: 2.40...3.00

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1200
Supply-pump
pressure bar: 4.80...5.40

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1600
Supply-pump
pressure bar: 6.40...7.00

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12
Overflow : 41.70...86.20
quantity cm³/10s: (26.70...101.20)

2nd speed 1/min: 1600
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 1650
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 27.00...33.00
1000S.: (24.00...36.00)

8th speed 1/min: 1625
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 33.50...41.50
9th speed 1/min: 1600

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...40.00
1000S.: (35.50...41.50)

12th speed 1/min: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 43.50...44.50
1000S.: (41.00...47.00)

20th speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.50...45.50
1000S.: (41.00...47.00)

Mech. shutoff:
Mech. Abst \ddot{u} llung:

1st speed 1/min: 1600
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 11.50...15.50
1000S.: (9.50...17.50)

Dispersion cm³/: 3.5
1000S.: (3.5)

2nd speed 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 480
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 2.00...8.00
1000S.: (1.00...9.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1200
Inj.-qty. cm³/ : -5.0...-7.0 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1200
Supply pump-
pressure : -0.1...-0.3 "
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...80.00
1000S.: (50.00...80.00)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...60.00
1000S.: (40.00...60.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...85.00
1000S.: (45.00...85.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.7...5.9
MS mm: 0.6...1.0
SVS max. mm: 1.3
XK mm: 17.0...19.0
XL mm: 14.2...17.6

Remarks:
:
:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA
Edition : 02.94
replaces : 03.12.92
Calibrating oil : ISO-4113

Injection pump : VE4/10F2100L414
Type number : 0 460 404 068
Customer Part-No. :

Customer-specific information
Customer : VM

Engine : HR 425 CLI

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.40...1.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

F02

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 4.20...4.80
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 65.50...66.50

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.0
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
1000S.: 43.00...44.00

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2300
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 40.00...46.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 45.00...75.00
mind 1000S.: 45.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: 1000
Inj.-qty. cm3/
difference 1000S.: -28.0...-34.0 #

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1500
Charge press hPa: 1000
TD-travel
difference mm: -0.5...-0.7 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 3.40...4.20
mm: (3.10...4.50)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.40...1.80
mm: (0.90...2.30)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 700
Charge press hPa: 1000
TD travel mm: 0.20...1.00
mm: (0.00...1.30)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 2100
Charge press. hPa: 1000
TD travel mm: 6.10...6.90
mm: (5.80...7.20)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.20...7.80

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.20...4.80

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 700
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.20...3.80

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 2100
Charge press. hPa: 1000

Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700
Charge-air pressure-setting
point hPa: 350
LDA-stroke mm: 7.1
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 55.50...56.50
1000S.: (53.50...58.50)

3rd speed 1/min: 2550
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...8.00
1000S.: (0.00...8.00)

5th speed 1/min: 2300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...46.00
1000S.: (39.00...47.00)

9th speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 63.00...66.00
1000S.: (61.50...67.50)

12th speed 1/min: 1500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 65.50...66.50
1000S.: (64.00...68.00)

18th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 43.00...44.00
1000S.: (41.00...46.00)

20th speed 1/min: 700

Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 65.50...68.50
1000S.: (64.00...70.00)

Delivery-quant. and breakaway char.:

Inj.-qty.values,temp.-compensated
temperatura

Del. quantity cm³/: 0.00...8.00
1000S.: (0.00...8.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.00...17.00
1000S.: (10.00...20.00)

Dispersion cm³/: 3.0
1000S.: (3.0)

2nd speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: (0.00...5.00)

3rd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.50...7.50
1000S.: (2.00...8.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
Charge press. hPa: 1000
Inj.-qty. cm³/ : -25.0...-27.0"
difference 1000S.: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1500

Supply pump-
pressure : -0.1...-0.3 "
difference bar: -

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 43.00...44.00
1000S.: (41.00...46.00)

Automatic starting fuel delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000S.: (45.00...75.00)

2nd speed 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...45.00
1000S.: (25.00...45.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000S.: (45.00...75.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.2...5.6
MS mm: 0.6...1.0
LDA stroke mm: 7.1
XK mm: 38.8...40.8
XL mm: 37.2...46.8

Ajustement Potentiometer:

Supply voltage
pot. volt: 5.0
Output volt
pot. volt: 2.31

Operate control lever after each manifold-pressure compensator pressure change. :

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VMA
Edition : 02.94
replaces : 02.08.93
Calibrating oil : ISO-4113
Injection pump : VE4/10F2100L414-1
Type number : 0 460 404 073
Customer Part-No. :

Customer-specific information
Customer : VM

Engine : HR 425 CLIRS

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.20...1.60
Shutoff
electromagnet Volt: 12

Supply-pump pressure

FD6

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 4.70...5.30
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 65.00...66.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.0
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
1000S.: 43.00...44.00

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2300
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 40.00...46.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 45.00...75.00
mind 1000S.: 45.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: -
Inj.-qty. cm3/
difference 1000S.: -13.0...-19.0 #

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1500
Charge press hPa: -
TD-travel
difference mm: -1.4...-1.6 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
Charge press hPa: 1000
TD travel mm: 7.30...8.10
mm: (7.00...8.40)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.20...1.60
mm: (0.70...2.10)

Shutoff
electromagnet Volt: 12
6th speed 1/min: 1500
Charge press. hPa: 1000
TD travel mm: 4.00...4.80
mm: (3.70...5.10)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.60...8.20

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.70...5.30

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 700
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.80...4.40

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: 1000

F07

Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700
Charge-air pressure-setting
point hPa: 350
LDA-stroke mm: 7.0
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 54.00...55.00
1000S.: (52.00...57.00)

3rd speed 1/min: 2550
Charge press. hPa: 1000
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 0.00...8.00
1000S.: (0.00...8.00)

5th speed 1/min: 2300
Charge press. hPa: 1000
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 40.00...46.00
1000S.: (39.00...47.00)

9th speed 1/min: 2100
Charge press. hPa: 1000
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 61.50...64.50
1000S.: (60.00...66.00)

12th speed 1/min: 1500
Charge press. hPa: 1000
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 65.00...66.00
1000S.: (63.50...67.50)

18th speed 1/min: 700
Charge press. hPa: -
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 43.00...44.00
1000S.: (41.00...46.00)

20th speed 1/min: 700
Charge press. hPa: 1000
Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 65.00...68.00
1000S.: (63.50...69.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.00...17.00
1000S.: (10.00...20.00)

Dispersion cm³/: 3.0
1000S.: (3.0)

2nd speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: (0.00...5.00)

3rd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 1.50...6.50
1000S.: (1.00...7.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
Charge press. hPa: -
Inj.-qty. cm³/: -7.0...-9.0 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1500
Charge press. hPa: -
Supply pump-
pressure : -0.1...-0.3 "
difference bar: -
Shutoff
electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 43.00...44.00
1000S.: (41.00...46.00)

Automatic starting fuel delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000S.: (45.00...75.00)

2nd speed 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...45.00
1000S.: (25.00...45.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000S.: (45.00...75.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.2...5.6
MS mm: 0.6...1.0
SVS max. mm: 4.3
LDA stroke mm: 7.0
Ya mm: 38.8...40.8
Yb mm: 36.2...45.8

Ajustement Potentiometer:

Supply voltage
pot. volt: 5.0
Output volt
pot. volt: 2.31

Remarks:

:
:
Operate control lever after each
manifold-pressure compensator pressure
change.

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : S0F
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/10F2050R589
Type number : 0 460 404 081
Customer Part-No. :

Customer-specific information
Customer : IVECO-SOFIM

Engine : 8140.67

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: 0.2
(from BDC): +0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Setting value mm: 2.00...2.20
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1200
Setting value bar: 5.80...6.40
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1200
Del. quantity cm3/
1000S.: 41.50...42.50
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2,5
1000S.: (2,5)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 12.0...16.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (2.5)

Full-load speed regulation

Speed 1/min: 2300
Del. quantity cm3/
1000S.: 31.00...35.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 70.00...110.00
mind 1000S.: 70.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1200
Inj.-qty. cm3/
difference 1000S.: -15.0...-21.0 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1200
TD-travel
difference mm: -0.7...-0.9 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1200
 TD travel mm: 2.00...2.20
 mm: (1.50...2.70)
 electromagnet Volt: 12
 2nd speed 1/min: 1600
 TD travel mm: 4.40...5.00
 mm: (4.00...5.40)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1800
 TD travel mm: 5.60...6.20
 mm: (5.20...6.60)
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 2100
 TD travel mm: 7.00...7.80
 mm: (6.70...8.10)
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
 Supply-pump pressure bar: 3.90...4.50
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1200
 Supply-pump pressure bar: 5.80...6.40
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2100
 Supply-pump pressure bar: 8.30...8.90
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 41.70...83.40
 (27.80...97.30)
 2nd speed 1/min: 2100
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 55.60...137.90
 (41.70...152.90)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1200
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 41.50...42.50
 1000S.: (40.00...44.00)
 2nd speed 1/min: 2600
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: -
 3rd speed 1/min: 2400
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 11.00...21.0
 1000S.: -
 4th speed 1/min: 2300
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 31.00...35.00
 1000S.: (27.00...39.00)
 5th speed 1/min: 2100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 38.50...41.50
 1000S.: (37.50...42.50)
 6th speed 1/min: 1500
 Del. quantity cm³/: 40.00...43.00
 1000S.: (39.00...44.00)
 7th speed 1/min: 600
 Del. quantity cm³/: 35.50...39.50
 1000S.: (34.50...40.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 12.00...16.00
 1000S.: (9.00...19.00)
 Dispersion cm³/: 2.5
 1000S.: (2.5)
 2nd speed 1/min: 465
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1200
 Inj.-qty. cm³/ : -13.0...-15.0"
 difference 1000S.: -

Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1200
 Inj.-qty. cm³/: 0.0...+3.0 'Z
 difference 1000S.: -
 Shutoff
 electromagnet Volt: 12

 TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1200
 TD-travel : -0.7...-0.9 '
 difference mm: -
 Shutoff
 electromagnet Volt: 12

 SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1200
 Supply pump-
 pressure : -0.1...-0.3 "
 difference bar: -

 Part-load del.at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0

 1st speed 1/min: 1200
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 19.5...20.5
 1000S.: (17.5...22.5)

 Automatic starting fuel delivery:

 1st speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 25.00...45.00
 1000S.: -

 2nd speed 1/min: 300
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 55.00...85.00
 1000S.: -

 3rd speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 70.00...110.00
 1000S.: -

 Shutoff electromagnet:

 Cut-in
 min voltage : 10.0

Rated voltage : 12.0

 Mounting and assembly dimensions:

 Designation
 K mm: -
 KF mm: 5.6...6.0
 MS mm: 1.7...1.9
 Ya mm: 42.8...44.8
 Yb mm: 62.4...70.8

Remarks:

 Ya = Distance between VE flange and
 speed-control lever in idle
 position
 Measurement point = edge of control
 lever on drive end

 Yb = Distance between VE flange and
 speed-control lever in rated speed
 position
 Measurement point = edge of control
 lever on distributor-head end

Pump with slave plunger

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/10F2050R591
Type number : 0 460 404 022
Customer Part-No. :

Customer-specific information
Customer : IVECO-SOFIM

Engine : 8140.67

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: 0.2
(from BDC): +0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200
Setting value mm: 2.10...2.30
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1200
Setting value bar: 6.00...6.60
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1200
Del. quantity cm3/
1000S.: 42.00...43.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2,5
1000S.: (2,5)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 12.0...16.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (2.5)

Full-load speed regulation

Speed 1/min: 2300
Del. quantity cm3/
1000S.: 23.00...27.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 70.00...110.00
mind 1000S.: 70.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1200
Inj.-qty. cm3/
difference 1000S.: -15.0...-21.0 #

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1200

TD-travel
difference mm: -0.7...-0.9 #

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1200
 TD travel mm: 2.10...2.30
 mm: (1.60...2.80)
 electromagnet Volt: 12
 2nd speed 1/min: 1600
 TD travel mm: 4.50...5.10
 mm: (4.10...5.50)
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1800
 TD travel mm: 5.70...6.30
 mm: (5.30...6.70)
 Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 2100
 TD travel mm: 7.00...7.80
 mm: (6.70...8.10)
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
 Supply-pump pressure bar: 4.10...4.70
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1200
 Supply-pump pressure bar: 6.00...6.60
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2100
 Supply-pump pressure bar: 8.50...9.10
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 41.70...83.40
 (27.80...97.30)
 2nd speed 1/min: 2100
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 55.60...137.90
 (41.70...152.90)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1200
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/1000S.: 42.00...43.00
 (40.50...44.50)
 2nd speed 1/min: 2600
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 0.00...3.00
 -
 3rd speed 1/min: 2400
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 3.00...13.00
 -
 4th speed 1/min: 2300
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 23.00...27.00
 (19.00...31.00)
 5th speed 1/min: 2100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 39.00...42.00
 (38.00...43.00)
 6th speed 1/min: 1500
 Del. quantity cm³/1000S.: 40.50...43.50
 (39.50...44.50)
 7th speed 1/min: 600
 Del. quantity cm³/1000S.: 35.50...39.50
 (34.50...40.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)
 Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 12.00...16.00
 (9.00...19.00)
 Dispersion cm³/1000S.: 2.5
 (2.5)
 2nd speed 1/min: 465
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1200
 Inj.-qty. cm³ difference 1000S.: -13.0...-15.0"
 -

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1200
Inj.-qty. cm³/: 0.0...+3.0 'Z
difference 1000S.: -
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1200
TD-travel : -0.7...-0.9 '
difference mm: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1200
Supply pump-
pressure : -0.1...-0.3 ''
difference bar: -

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 29.5...33.5
1000S.: (29.0...34.0)

Automatic starting fuel delivery:
1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...45.00
1000S.: -

2nd speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.00...85.00
1000S.: -

3rd speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 70.00...110.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.6...6.0
MS mm: 1.6...2.0
Ya mm: 42.9...44.9
Yb mm: 31.7...39.7

Remarks:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Pump with slave plunger

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 02.94
replaces : 19.12.86
Calibrating oil : ISO-4113

Injection pump : VE6/10F2400L116-5
Type number : 0 460 406 036
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 087 T

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 750
Setting value mm: 1.50...1.90
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 750
Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 750
Del. quantity cm³/
1000S.: 42.60...43.60

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm³/
1000S.: 26.70...27.70

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 415
Del. quantity cm³/
1000S.: 7.00...9.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2675
Charge press hPa: 750
Del. quantity cm³/
1000S.: 11.00...15.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 40.00...70.00
mind 1000S.: 40.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1200
Charge press hPa: 750

TD travel mm: 0.30...1.10
 mm: (0.00...1.40)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1500
 Charge press hPa: 750
 TD travel mm: 1.50...1.90
 mm: (1.00...2.40)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 2400
 Charge press hPa: 750
 TD travel mm: 3.70...4.50
 mm: (3.40...4.80)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
 Charge press. hPa: 750
 Supply-pump pressure bar: 3.30...3.90
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 Charge press. hPa: 750
 Supply-pump pressure bar: 5.70...6.30
 Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 2400
 Charge press. hPa: 750
 Supply-pump pressure bar: 8.00...8.60
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 41.70...83.40
 (27.80...97.30)
 2nd speed 1/min: 2400
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Overflow quantity cm³/10s: 55.60...138.90
 (41.70...153.90)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
 Charge-air pressure-setting point hPa: 300
 LDA-stroke mm: 4.8

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 33.50...34.50
 (31.00...37.00)

2nd speed 1/min: 2850
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)

3rd speed 1/min: 2675
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 11.00...15.00
 (9.00...17.00)

4th speed 1/min: 2575
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 18.00...28.00
 (17.00...29.00)

5th speed 1/min: 2400
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 36.30...38.30
 (35.10...39.50)

6th speed 1/min: 1500
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 42.60...43.60
 (40.90...45.30)

7th speed 1/min: 600
 Charge press. hPa: 750
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 35.50...38.50
 (34.00...40.00)

8th speed 1/min: 600
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/1000S.: 26.70...27.70
 (24.20...30.20)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 415
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)

Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 415

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)
Dispersion cm³/: 2.0
1000S.: (3.0)
2nd speed 1/min: 750

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 430
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...30.00
1000S.: -

2nd speed 1/min: 230
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...70.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...70.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 6.3...6.7
MS mm: 1.7...1.9
SVS max. mm: 2.8
LDA stroke mm: 4.8
Ya mm: 8.5...10.5
Yb mm: 71.0...89.6

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and

speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Operate control lever after each
manifold-pressure compensator pressure
change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ONA
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/10F1500R209-6
Type number : 0 460 406 066
Customer Part-No. :

Customer-specific information
Customer : ONAN

Engine : L 634 TA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.2
(from BDC): ±0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400
Charge press. hPa: 800
Setting value mm: 1.40...2.20
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1400
Charge press hPa: 800
Setting value bar: 4.80...5.40
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1400
Charge press. hPa: 800
Del. quantity cm3/
1000S.: 55.50...56.50

Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
1000S.: 42.50...43.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 14.00...18.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 1640
Charge press hPa: 800
Del. quantity cm3/
1000S.: 20.00...24.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 42.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1100
Charge press hPa: 800
Inj.-qty. cm3/
difference 1000S.: -8.50...-16.5 #

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1100
Charge press hPa: 800
TD-travel
difference mm: -0.5...-0.7 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1400
Charge press hPa: 800
TD travel mm: 4.30...4.70
mm: (3.80...5.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1100
Charge press hPa: 800
TD travel mm: 2.70...3.30
mm: (2.70...3.70)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 800
Charge press hPa: 800
TD travel mm: 1.40...2.20
mm: (1.10...2.50)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 700
Charge press. hPa: 800
Supply-pump
pressure bar: 2.30...2.90
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1100
Charge press. hPa: 800
Supply-pump
pressure bar: 3.80...4.40
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 1400
Charge press. hPa: 800
Supply-pump
pressure bar: 4.70...5.40
Shutoff
electromagnet Volt: 12

Overlow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: 800

F20

Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)
2nd speed 1/min: 1500
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Overflow : 55.60...138.90
quantity cm³/10s: (41.70...153.90)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700
Charge-air pressure-setting
point hPa: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 48.00...49.00
1000S.: (46.30...50.80)

2nd speed 1/min: 1740
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

3rd speed 1/min: 1640
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...24.00
1000S.: (18.00...26.00)

4th speed 1/min: 1580
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 43.00...51.00
1000S.: -

5th speed 1/min: 1500
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 52.50...55.50
1000S.: (51.70...56.30)

6th speed 1/min: 1400
Charge press. hPa: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.50...56.50
1000S.: (53.70...58.30)

7th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.50...43.50
1000S.: (40.70...45.30)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1500
Charge press. hPa: 800
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 14.00...18.00
1000S.: (12.00...20.00)

Dispersion cm³/: 2.0
1000S.: (3.0)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1100
Charge press. hPa: 800
Inj.-qty. cm³/ : -5.0...-7.0 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1100
Charge press. hPa: 800
Supply pump-
pressure : -0.1...-0.3 "
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 18.00...42.00
1000S.: -

2nd speed 1/min: 220
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.00...92.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.00...92.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: 5.8...6.2
MS mm: 0.8...1.2
SVS max. mm: 1.9
LDA stroke mm: -
Ya mm: 30.8...34.8
Yb mm: 64.2...78.8

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Operate control lever after each
manifold-pressure compensator pressure
change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW
 Edition : 02.94
 replaces : 07.93
 Calibrating oil : ISO-4113
 Injection pump : VE6/10F2150L398
 Type number : 0 460 406 075
 Customer Part-No. :

Customer-specific information
 Customer : VW

Engine : 2.4L SD

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 000

Opening
 Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
 Setting value mm: 4.40...4.80
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
 Setting value bar: 6.00...6.60
 Shutoff
 electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
 Del. quantity cm3/
 1000S.: 29.50...30.50
 Shutoff
 electromagnet Volt: 12
 Dispersion cm3/: 2.5
 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 375
 Del. quantity cm3/
 1000S.: 7.00...9.00
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 2.0
 1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2325
 Del. quantity cm3/
 1000S.: 10.00...14.00
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm3/: 35.00...65.00
 mind 1000S.: 35.00
 Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1500
 Inj.-qty. cm3/
 difference 1000S.: -8.00...-12.00#
 Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1500
 TD-travel
 difference mm: -0.60...-0.80#
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1700
TD travel mm: 5.10...5.90
mm: (4.80...6.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
TD travel mm: 4.40...4.80
mm: (3.90...5.30)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
TD travel mm: 1.80...2.60
mm: (1.50...2.90)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 3.80...4.40
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1500
Supply-pump
pressure bar: 6.00...6.60
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 2150
Supply-pump
pressure bar: 7.90...8.50
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(27.80...97.30)
2nd speed 1/min: 2150
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...138.90
(41.70...153.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)
5th speed 1/min: 2325
Shutoff
electromagnet Volt: 12

Del. quantity cm³/1000S.: 10.00...14.00
(8.00...16.00)
8th speed 1/min: 2275

Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 14.50...24.50
(13.50...25.50)
9th speed 1/min: 2150

Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 21.50...23.50
(20.30...24.70)
10th speed 1/min: 1850

Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 23.20...25.80
(21.50...27.50)
12th speed 1/min: 1250

Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 29.50...30.50
(27.80...32.20)
20th speed 1/min: 750

Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 26.00...29.00
(24.50...30.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)
Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 7.00...9.00
(4.00...12.00)

Dispersion cm³/1000S.: 2.0
(3.0)
2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12

Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
Inj.-qty. cm³/difference 1000S.: -6.5...-8.5
-

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Inj.-qty. cm³/: 0.0...3.0 Z "
difference 1000S.: -

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1500
TD-travel : -1.1...-1.5 "
difference mm: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1500
Supply pump-
pressure : -0.1...-0.3 "
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...75.00
1000S.: (35.00...75.00)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...35.00
1000S.: (15.00...35.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...65.00
1000S.: (35.00...65.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 6.3...6.7
MS mm: 1.3...1.7
Ya mm: 31.5...33.5
Yb mm: 51.2...63.4

Remarks:

:

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 2.94
replaces : 04.06.92
Calibrating oil : ISO-4113

Injection pump : VE3/11F1250L163-1
Type number : 0 460 413 002
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT

Engine : 8035.06.200 "DI"

Power KW: 38
Speed 1/min: 1250

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
Pressure bar: 172.00...175.00

Perforated-plate
diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.2
(from BDC): $\pm 0.02(0.04)$

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Setting value mm: 2.80...3.20

F25

Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000
Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 750
Del. quantity cm³/
1000S.: 65.00...66.00

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 3.5
1000S.: (4.0)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm³/
1000S.: 15.50...19.50

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.5
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1350
Del. quantity cm³/
1000S.: 42.00...47.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 80.00...130.00
mind 1000S.: 80.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
TD travel mm: 4.40...5.20
mm: (4.10...5.50)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
TD travel mm: 2.80...3.20
mm: (2.30...3.70)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 800
 TD travel mm: 1.10...1.90
 mm: (0.80...2.20)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Supply-pump pressure bar: 3.40...4.00
 Shutoff electromagnet Volt: 12
 2nd speed 1/min: 1000
 Supply-pump pressure bar: 5.7...6.300
 Shutoff electromagnet Volt: 12
 3rd speed 1/min: 1250
 Supply-pump pressure bar: 6.80...7.40
 Shutoff electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Shutoff electromagnet Volt: 12
 Overflow quantity cm³/10s: 41.70...83.40
 (26.70...98.40)
 2nd speed 1/min: 1250
 Shutoff electromagnet Volt: 12
 Overflow quantity cm³/10s: 55.60...139.00
 (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1450
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)
 4th speed 1/min: 1400
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 4.00...16.00
 (0.00...20.00)
 5th speed 1/min: 1350
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 43.00...47.00
 (39.00...51.00)
 8th speed 1/min: 1250
 Shutoff electromagnet Volt: 12

Del. quantity cm³/1000S.: 63.50...66.50
 ((2.00...68.00)
 9th speed 1/min: 750
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 65.00...66.00
 (62.50...68.50)
 10th speed 1/min: 500
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 56.50...59.50
 (55.00...61.00)

Mech. shutoff:
 Mech. Abststellung:

1st speed 1/min: 1250
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)
 Shutoff electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)
 Shutoff electromagnet volt: -

Idle delivery:

1st speed 1/min: 400
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 15.50...19.50
 (13.50...21.50)
 Dispersion cm³/1000S.: 3.5
 (3.5)
 2nd speed 1/min: 475
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 250
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 30.00...50.00
 (0.00...50.00)
 2nd speed 1/min: 150
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/1000S.: 90.00...140.00
 (0.00...140.00)
 4th speed 1/min: 100

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 80.00...130.00

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation:

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 1.5...1.7
SVS max.	mm: 4.7
Ya	mm: 37.9...39.9
Yb	mm: 44.0...49.0

Remarks:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : STE
Edition : 2.94
replaces : 12.06.92
Calibrating oil : ISO-4113
Injection pump : VE3/11F1200R263-1
Type number : 0 460 413 007
Customer Part-No. :

Customer-specific information
Customer : STEYR

Engine : WD311-85

Power KW: 41
Speed 1/min: 1200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Setting value mm: 5.80...6.20

Supply-pump pressure

F28

Speed 1/min: 1000
Setting value bar: 6.20...6.80

Full-load del. w/out charge press.:

Speed 1/min: 1000
Del. quantity cm3/
1000S.: 78.00...79.00
Dispersion cm3/: 3.5
1000S.: (3.5)

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm3/
1000S.: 11.00...15.00
Del. quantity cm3/: 3.5
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1300
Del. quantity cm3/
1000S.: 17.00...23.00

Start:

Speed 1/min: 100
Del. quantity cm3/: 84.00...134.00
mind 1000S.: 84.00

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1200
TD travel mm: 6.90...7.70
mm: (6.60...8.00)
3rd speed 1/min: 1000
TD travel mm: 5.80...6.20
mm: (5.30...6.70)
4th speed 1/min: 500
TD travel mm: 1.60...2.40
mm: (1.30...2.70)

Supply-pump pressure characteristic:

1st speed 1/min: 1200
Supply-pump
pressure bar: 7.00...7.60
2nd speed 1/min: 1000
Supply-pump
pressure bar: 6.20...6.80
3rd speed 1/min: 500
Supply-pump
pressure bar: 4.30...4.90

Overlow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...89.40)
2nd speed 1/min: 1200
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
5th speed 1/min: 1300
Del. quantity cm³/: 17.00...23.00
1000S.: (15.00...25.00)
3th speed 1/min: 1250
Del. quantity cm³/: 41.00...57.00
1000S.: (39.00...59.00)
9th speed 1/min: 1175
Del. quantity cm³/: 76.50...79.50
1000S.: (75.70...80.30)
12th speed 1/min: 1000
Del. quantity cm³/: 78.00...79.00
1000S.: (76.20...80.80)
20th speed 1/min: 500
Del. quantity cm³/: 72.50...75.50
1000S.: (71.50...76.50)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1175
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 300
Del. quantity cm³/: 11.00...15.00
1000S.: (9.00...17.00)
Dispersion cm³/: 3.5
1000S.: (3.5)
2nd speed 1/min: 330
Del. quantity cm³/: 3.00...9.00
1000S.: (2.00...10.00)
3rd speed 1/min: 400
Del. quantity cm³/: 0.00...2.60
1000S.: (0.00...2.60)

Automatic starting fuel delivery:

1st speed 1/min: 170
Del. quantity cm³/: 84.00...134.00
1000S.: -

2nd speed 1/min: 270
Del. quantity cm³/: 37.00...73.00
1000S.: -

4th speed 1/min: 100
Del. quantity cm³/: 84.00...134.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.6...6.0
MS	mm: 1.3...1.7
SVS max.	mm: 5.0
XK	mm: 17.0...19.0
XL	mm: 12.6...16.0
Ya	mm: 37.2...39.2
Yb	mm: 50.1...58.3

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : STE
Edition : 2.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE3/11F1200R263-4
Type number : 0 460 413 010
Customer Part-No. :

Customer-specific information
Customer : STEYR

Engine : WD308.85 "D1"

Power KW: 35
Speed 1/min: 1200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Setting value mm: 5.00...5.40

Supply-pump pressure

Speed 1/min: 1000
Setting value bar: 5.70...6.30

Full-load del. w/out charge press.:

Speed 1/min: 1000
Del. quantity cm3/
1000S.: 64.00...65.00
Dispersion cm3/: 3.5
1000S.: (3.5)

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm3/
1000S.: 17.00...21.00
Del. quantity cm3/: 3.5
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 31.00...39.00

Start:

Speed 1/min: 100
Del. quantity cm3/: 70.00...120.00
mind 1000S.: 70.00

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1200
TD travel mm: 6.70...7.50
mm: (6.40...7.80)

3rd speed 1/min: 1000
TD travel mm: 5.00...5.40
mm: (4.50...5.90)

4th speed 1/min: 500
TD travel mm: 0.50...1.30
mm: (0.20...1.60)

Supply-pump pressure characteristic:

1st speed 1/min: 1200
Supply-pump
pressure bar: 6.50...7.10

2nd speed 1/min: 1000
Supply-pump
pressure bar: 5.70...6.30

3rd speed 1/min: 500
Supply-pump
pressure bar: 3.90...4.50

Overlow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...89.40)
2nd speed 1/min: 1175
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
5th speed 1/min: 1250
Del. quantity cm³/: 31.00...39.00
1000S.: (29.00...41.00)
8th speed 1/min: 1220
Del. quantity cm³/: 45.00...65.00
1000S.: -
9th speed 1/min: 1175
Del. quantity cm³/: 61.00...64.00
1000S.: (59.70...65.30)
12th speed 1/min: 1000
Del. quantity cm³/: 64.00...65.00
1000S.: (62.00...67.00)
20th speed 1/min: 500
Del. quantity cm³/: 57.50...60.50
1000S.: (56.50...61.50)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1175
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 300
Del. quantity cm³/: 17.00...21.00
1000S.: (15.00...23.00)
Dispersion cm³/: 3.5
1000S.: (3.5)
2nd speed 1/min: 330
Del. quantity cm³/: 9.00...15.00
1000S.: (8.00...16.00)
3rd speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 170
Del. quantity cm³/: 70.00...120.00
1000S.: -

2nd speed 1/min: 270
Del. quantity cm³/: 25.00...55.00
1000S.: -

4th speed 1/min: 100
Del. quantity cm³/: 70.00...120.00
1000S.: -

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4
KF mm: 5.6...6.0
MS mm: 1.3...1.7
SVS max. mm: 5.0
Ya mm: 37.2...39.2
Yb mm: 48.0...56.4

Remarks:

:
:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 02.94
replaces : 12.06.92
Calibrating oil : ISO-4113
Injection pump : VE4/11F1350R257
Type number : 0 460 414 039
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT

Engine : 8040.25.200+220

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
Pressure bar: 172.00...175.00

Perforated-plate
diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.4
(from BDC): +-0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 3.80...4.20

Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 800
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 92.50...93.50

Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 67.50...70.50

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 22.00...26.00

Shutoff
electromagnet Volt: 24
Del. quantity cm3/
1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 1500
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 34.00...40.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 90.00...140.00
mind 1000S.: 90.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1350
Charge press hPa: 1000
TD travel mm: 6.30...7.10
mm: (6.00...7.40)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 3.80...4.20
mm: (3.30...4.70)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 800
Charge press hPa: 1000
TD travel mm: 1.70...2.50
mm: (1.40...2.80)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.60...4.20
Shutoff

electromagnet Volt: 24
3rd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.70...6.30
Shutoff

electromagnet Volt: 24
4th speed 1/min: 1350
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.00...7.60
Shutoff

electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow : 41.70...86.10
quantity cm³/10s: (26.70...101.10)

2nd speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 500
Charge-air pressure-setting
point hPa: 250
LDA-stroke mm: 4.4
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 79.00...80.00
1000S.: (75.50...83.50)

2nd speed 1/min: 1600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 1500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 34.00...40.00
1000S.: (31.00...43.00)

9th speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 89.00...92.00
1000S.: (87.00...94.00)

12th speed 1/min: 800
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 92.50...93.50
1000S.: (89.50...96.50)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 67.50...70.50
1000S.: (65.50...72.50)

20th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 88.00...91.00
1000S.: (86.50...92.50)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1350
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 22.00...26.00
1000S.: (19.00...29.00)
Dispersion cm³/: 3.5
1000S.: (4.0)
2nd speed 1/min: 430
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 400
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 3.00...13.00
1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 150
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 90.00...140.00
1000S.: (90.00...140.00)
2nd speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 40.00...60.00
1000S.: (40.00...60.00)
4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 90.00...140.00
1000S.: (90.00...140.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.1...5.5
MS	mm: 1.2...1.6
SVS max.	mm: 5.3
LDA stroke	mm: 4.4
XK	mm: 17.0...19.0
XL	mm: 14.2...17.6
Ya	mm: 37.9...39.9

Yb mm: 45.4...50.7

Remarks:

:
Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/11F1500R266
Type number : 0 460 414 041
Customer Part-No. : 2643H061

Customer-specific information
Customer : PERKINS

Engine : 500 HYDROVAN

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: 0.5
(from BDC): ±0.02(0.04)

Start of delivery block
Piston stroke mm: 1,47
mm: ±0.02(0.06)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Setting value mm: 2.40...2.80
Shutoff
electromagnet Volt: 12

G07

Supply-pump pressure

Speed 1/min: 1100
Setting value bar: 4.90...5.50
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm³/
1000S.: 33.00...34.00
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 3.5
1000S.: (3.5)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm³/
1000S.: 11.00...15.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 1700
Del. quantity cm³/
1000S.: 7.00...13.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 70.00...100.00
mind 1000S.: 70.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1500
TD travel mm: 3.70...4.50
mm: (3.40...4.80)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1100
TD travel mm: 2.40...2.80
mm: (1.90...3.30)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 700

TD travel mm: 0.40...1.20
mm: (0.10...1.50)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 1350

TD travel mm: 3.40...4.20
mm: (3.10...4.50)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 700
Supply-pump
pressure bar: 3.50...4.10

Shutoff
electromagnet Volt: 12

2nd speed 1/min: 1100

Supply-pump
pressure bar: 4.90...5.50

Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1500

Supply-pump
pressure bar: 6.40...7.00

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600

Shutoff
electromagnet Volt: 12

Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 1500

Shutoff
electromagnet Volt: 12

Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1750

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 1700

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 7.00...13.00
1000S.: (5.00...15.00)

9th speed 1/min: 1500

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 54.50...57.50
1000S.: (53.00...59.00)

10th speed 1/min: 1100

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.50...58.50
1000S.: (54.00...60.00)

12th speed 1/min: 600

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 33.00...34.00
1000S.: (31.00...36.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 11.00...15.00
1000S.: (9.00...17.00)

Dispersion cm³/: 3.0
1000S.: (3.0)

2nd speed 1/min: 400

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.00...9.00
1000S.: (1.50...10.50)

3rd speed 1/min: 460

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: (0.00...5.00)

Automatic starting fuel delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.00...52.00
1000S.: (36.00...52.00)

2nd speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 24.50...39.50
1000S.: (24.50...39.50)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 70.00...100.00
1000S.: (70.00...100.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: KOT
MS1	mm: 1.5...1.7
SVS max.	mm: 3.5
Ya	mm: 28.5...30.5
Yb	mm: 59.7...70.1

Remarks:

⋮

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/11F1400R39-2
Type number : 0 460 414 063
Customer Part-No. :

Customer-specific information
Customer : DEUTZ

Engine : E 4 L913V

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Setting value mm: 3.60...4.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000

G10

Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1000
Del. quantity cm3/
1000S.: 60.5...63.5

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.0
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 1500
Del. quantity cm3/
1000S.: 32.00...41.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 75.00...105.00
mind 1000S.: 75.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1400
TD travel mm: 5.40...6.20
mm: (5.10...6.50)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1000
TD travel mm: 3.60...4.00
mm: (3.10...4.50)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 500
TD travel mm: 0.10...0.90
mm: (0.00...1.20)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1400
Supply-pump pressure bar: 6.90...7.50
Shutoff electromagnet Volt: 12
2nd speed 1/min: 1000
Supply-pump pressure bar: 5.70...6.30
Shutoff electromagnet Volt: 12
3rd speed 1/min: 500
Supply-pump pressure bar: 4.20...4.80
Shutoff electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40 (26.70...98.40)
2nd speed 1/min: 2000
Shutoff electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...139.00 (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1670
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: 0.00...1.60 -
2nd speed 1/min: 1580
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: 7.00...20.00 -
3rd speed 1/min: 1500
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: 32.00...41.00 -
4th speed 1/min: 1400
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: 53.00...57.00 (52.00...58.00)
5th speed 1/min: 1000
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: 60.50...63.50 (59.50...64.50)

6th speed 1/min: 500
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: 56.00...61.00 (55.00...62.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/1000S.: 0.00...3.00 (0.00...3.00)

Shutoff electromagnet volt: 12

Idle delivery:

1st speed 1/min: 350
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: 13.0...17.0 (11.0...19.0)
Dispersion cm³/1000S.: 3.0 (3.0)
3rd speed 1/min: 420
Del. quantity cm³/1000S.: 6.00...10.00 (4.00...12.00)
4th speed 1/min: 500
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: 0.00...1.60 -

Automatic starting fuel delivery:

2nd speed 1/min: 220
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: 50.00...60.00 -

4th speed 1/min: 100
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000S.: 75.00...105.00 -

Shutoff electromagnet:

Cut-in min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.0...5.4

MS mm: 1.1...1.5
Ya mm: 35.2...37.2
Yb mm: 49.0...57.0

Remarks:

⋮

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER
Edition : 02.94
replaces : 07.10.91
Calibrating oil : ISO-4113

Injection pump : VE4/11F1500R266-3
Type number : 0 460 414 090
Customer Part-No. :

Customer-specific information
Customer : PERKINS

Engine : 500 GR DI.T/C

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: 0.5
(from BDC): ±0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Setting value mm: 2.40...2.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Setting value bar: 4.90...5.50
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1200
Del. quantity cm³/
1000S.: 61.50...62.50
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 3,5
1000S.: (3,5)

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm³/
1000S.: 11.00...15.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 1600
Del. quantity cm³/
1000S.: 12.00...18.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 70.00...110.00
mind 1000S.: 70.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1500
TD travel mm: 3.70...4.50
mm: (3.40...4.80)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1100
TD travel mm: 2.40...2.80
mm: (1.90...3.30)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 700
TD travel mm: 0.40...1.20
mm: (0.10...1.50)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 1350
TD travel mm: 3.40...4.20
mm: (3.10...4.50)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 700
Supply-pump
pressure bar: 3.50...4.10
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1100
Supply-pump
pressure bar: 4.90...5.50
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
Supply-pump
pressure bar: 6.40...7.00
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 1200
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1500
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

3rd speed 1/min: 1650
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
5th speed 1/min: 1600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...18.00
1000S.: (9.00...21.00)
9th speed 1/min: 1500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 59.50...62.50
1000S.: (58.00...64.00)
12th speed 1/min: 1200
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 61.50...62.50
1000S.: (59.50...64.50)
15th speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 27.50...29.50
1000S.: (25.50...31.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 11.00...15.00
1000S.: (9.00...17.00)

Dispersion cm³/: 3.0
1000S.: (3.0)

2nd speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.00...9.00
1000S.: (1.50...10.50)

3rd speed 1/min: 460
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: (0.00...5.00)

Automatic starting fuel delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...65.00
1000S.: (35.00...65.00)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 24.00...40.00
1000S.: (24.00...40.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 70.00...110.00
1000S.: (70.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: KOT
MS	mm: 0.7...1.1
Ya	mm: 28.5...30.5
Yb	mm: 62.4...72.6

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/11F1900R444
Type number : 0 460 414 091
Customer Part-No. :

Customer-specific information
Customer : IVECO-SOFIM

Engine : 8140.47.2785 "DI"

Power KW: 85
Speed 1/min: 1900

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000

Setting value mm: 2.00...2.40
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.30...5.90
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1750
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 58.00...59.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550
Del. quantity cm3/
1000S.: 25.00...26.00

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 325
Del. quantity cm3/
1000S.: 10.00...14.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2100
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 22.00...28.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 40.00...90.00
mind 1000S.: 40.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Charge press hPa: 1000
 Inj.-qty. cm³/
 difference 1000S.: -27.0...-35.0 #
 Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1250
 Charge press hPa: 1000
 TD-travel
 difference mm: -0.6...-0.9 #
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1500
 Charge press hPa: 1000
 TD travel mm: 3.60...4.40
 mm: (3.30...4.70)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 Charge press hPa: 1000
 TD travel mm: 2.00...2.40
 mm: (1.50...2.90)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 0.20...1.00
 mm: (0.00...1.40)

Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 1900
 Charge press. hPa: 1000
 TD travel mm: 4.50...5.30
 mm: (4.20...5.60)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 800
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 3.60...4.20
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 5.30...5.90
 Shutoff
 electromagnet Volt: 12

3rd speed 1/min: 1900
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 7.60...8.20
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 800
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 75.00...119.50
 quantity cm³/10s: (60.00...134.50)
 2nd speed 1/min: 1900
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 97.30...180.70
 quantity cm³/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 800
 Charge-air pressure-setting
 point hPa: 400
 LDA-stroke mm: 6.7
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 43.00...44.00
 1000S.: (39.50...47.50)

2nd speed 1/min: 2250
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

5th speed 1/min: 2100
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 22.00...28.00
 1000S.: (20.50...29.50)

8th speed 1/min: 2000
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 41.00...49.00
 1000S.: (39.00...51.00)

9th speed 1/min: 1900
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 58.00...63.00
 1000S.: (57.00...64.00)

12th speed 1/min: 1750
 Charge press. hPa: 1000

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 58.00...59.00
1000S.: (55.00...62.00)
15th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 52.50...57.50
1000S.: (51.00...59.00)
18th speed 1/min: 550
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...26.00
1000S.: (22.00...29.00)
20th speed 1/min: 800
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 49.50...58.50
1000S.: (48.50...59.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 325
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 325
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (8.00...16.00)

Dispersion cm³/: 6.0
1000S.: (6.5)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Charge press. hPa: 1000
Inj.-qty. cm³/: -28.0...-30.0"
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³/: +2.0...+8.0'
difference 1000S.: -

Shutoff
electromagnet Volt: 12
TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
Charge press. hPa: 1000
TD-travel : -0.60...-1.40'
difference mm: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Charge press. hPa: 1000
Supply pump-
pressure : -0.10...-0.30"
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.00...105.00
1000S.: (55.00...105.00)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 14.00...30.00
1000S.: (14.00...30.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 40.00...90.00
1000S.: (40.00...90.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: KOT
MS mm: 1.7...1.9
SVS max. mm: 0.9
LDA stroke mm: 6.7
Ya mm: 37.9...39.9
Yb mm: 44.9...50.3

Remarks:

:
Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Z = Absolute delivery



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ROVER
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/11F2000R462
Type number : 0 460 414 093
Customer Part-No. :

Customer-specific information
Customer : LANDROVER
Engine : GEMINI EGR "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 116

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.40
mm: -

Outlet : C

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1600
Charge press. hPa: 1000
Setting value mm: 3.30...3.70
Shutoff
electromagnet Volt: 12

Supply-ramp pressure

Speed 1/min: 1600
Charge press hPa: 1000
Setting value bar: 6.10...6.70
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1400
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 63.10...64.10

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 3.0
1000S.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 34.50...35.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 10.00...14.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 4.0
1000S.: (4.5)

Full-load speed regulation

Speed 1/min: 2100
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 52.30...58.30

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 80.00...130.00
mind 1000S.: 80.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 5.90...6.70
mm: (5.40...7.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1600
Charge press hPa: 1000
TD travel mm: 3.30...3.70
mm: (2.70...4.30)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1200
Charge press hPa: 1000
TD travel mm: 0.00...1.60
mm: (0.00...1.70)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.40...8.00
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1600
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.10...6.70
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 1200
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.00...5.60
Shutoff

electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...100.08
(40.60...115.08)

2nd speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 83.40...166.80
(68.40...181.80)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
Charge-air pressure-setting
point hPa: 300
LDA-stroke mm: 7.0
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 53.10...54.10
1000S.: (50.40...56.80)

2nd speed 1/min: 2600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 2400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.50...15.50
1000S.: (4.50...16.50)

5th speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 52.30...58.30
1000S.: (50.30...60.30)

9th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.10...64.10
1000S.: (58.90...65.30)

10th speed 1/min: 1800
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.50...63.50
1000S.: (58.50...65.50)

12th speed 1/min: 1400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 63.10...64.10
1000S.: (60.80...66.40)

16th speed 1/min: 800
Charge press. hPa: -
Shutoff
electromagnet volt: 12
Del. quantity cm³/: 39.50...43.50
1000H.: (38.00...45.00)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.50...35.50
1000S.: (31.80...38.20)

20th speed 1/min: 800

Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.90...65.90
1000S.: (59.40...67.40)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 300
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (7.00...17.00)

Dispersion cm³/: 4.0
1000S.: (4.5)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Part-load del. at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.50...39.50
1000S.: (34.50...42.50)

Automatic starting fuel delivery:

1st speed 1/min: 150
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 82.00...132.00
1000S.: (80.00...134.00)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...70.00
1000S.: (30.00...70.00)

4th speed 1/min: 100

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 80.00...130.00
1000S.: (80.00...130.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.4...3.6
KF mm: KOT
MS1 mm: 1.1...1.5
SVS max. mm: 2.9
LDA stroke mm: 7.0
Ya mm: 42.3...46.3
Yb mm: 49.0...50.0

Ajustement Potentiometer:

Supply voltage
pot. volt: 5.0
Output volt
pot. volt: 2.5

Remarks:

⋮
Operate control lever after each
manifold-pressure compensator pressure
change.

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/11F2250R482
Type number : O 460 414 094
Customer Part-No. :

Customer-specific information
Customer : PERKINS

Engine : T 4.20 (V) ARF

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 800
Setting value mm: 4.00...4.40
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 800
Setting value bar: 7.30...7.90
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 800
Del. quantity cm3/
1000S.: 66.50...67.50
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 4.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 625
Del. quantity cm3/
1000S.: 29.50...30.50
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 4.0

11

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 9.00...11.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 3.0
1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 2525
Charge press hPa: 800
Del. quantity cm3/
1000S.: 23.50...25.50
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 60.00...90.00
mind 1000s.: 60.00
KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 800
TD travel mm: 6.10...6.90
mm: (5.80...7.20)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
Charge press hPa: 800
TD travel mm: 4.00...4.40
mm: (3.60...4.80)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
Charge press hPa: 800
TD travel mm: 1.90...2.70
mm: (1.60...3.00)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
8th speed 1/min: 800
Charge press. hPa: 800
TD travel mm: 1.50...3.50 B
mm: (1.30...3.70)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12
9th speed 1/min: 500
Charge press. hPa: 800
TD travel mm: 2.10...2.30 A
mm: (1.40...3.00)

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Charge press. hPa: 800
Supply-pump
pressure bar: 6.00...6.60

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 800
Supply-pump
pressure bar: 7.30...7.90
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 800
Supply-pump
pressure bar: 8.30...8.90
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 625
Charge press. hPa: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 75.00...119.50
quantity cm³/10s: (60.00...134.50)
2nd speed 1/min: 2250
Charge press. hPa: 800
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 97.30...180.70
quantity cm³/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1000
Charge-air pressure-setting
point hPa: 300
LDA-stroke mm: 7.1
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 58.50...59.50
1000s.: (55.50...62.50)
3rd speed 1/min: 2625
Charge press. hPa: 800
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...10.00
 1000S.: (0.00...10.00)
 5th speed 1/min: 2525
 Charge press. hPa: 800
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 23.50...25.50
 1000S.: (20.50...28.50)
 9th speed 1/min: 2250
 Charge press. hPa: 800
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 70.00...74.00
 1000S.: (69.00...75.00)
 12th speed 1/min: 1250
 Charge press. hPa: 800
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 66.50...67.50
 1000S.: (64.50...69.50)
 18th speed 1/min: 625
 Charge press. hPa: -
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 29.50...30.50
 1000S.: (27.00...33.00)
 20th speed 1/min: 1000
 Charge press. hPa: 800
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 69.50...72.50
 1000S.: (67.50...74.50)
 21th speed 1/min: 500
 Charge press. hPa: -
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 27.50...32.50
 1000S.: (26.00...34.00)

Delivery-quant. and breakaway char.:

Inj.-qty.values,temp.-compensated
temperatura

Del. quantity cm³/: 0.00...10.00
 1000S.: (0.00...10.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -
KSB/AFB
valve Volt: 12

Idle delivery:

1st speed 1/min: 400
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...11.00
 1000S.: (6.00...14.00)

Dispersion cm³/: 3.0
 1000S.: (4.0)

2nd speed 1/min: 500

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
 1000S.: (0.00...5.00)

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 800
Charge press. hPa: 800
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.50...18.50
 1000S.: (15.50...20.50)

Automatic starting fuel delivery:

2nd speed 1/min: 350
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...40.00
 1000S.: (20.00...40.00)

4th speed 1/min: 100

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.00...90.00
1000S.: (60.00...90.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.3...3.5
KF mm: KOT
LDA stroke mm: 7.1
Ya mm: 37.0...39.0
Yb mm: 55.5...66.5

Ajustement Potentiometer:

Supply voltage
pot. volt: 5.0
Output volt
pot. volt: 2.43

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

A = KSB adjustment point

B = KSB curve point

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
 Edition : 02.94
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE4/11F1900R494
 Type number : 0 460 414 097
 Customer Part-No. :

Customer-specific information
 Customer : IVECO-SOFIM

Engine : 8140.47.2585 "DI"

Power KW: 85
 Speed 1/min: 1900

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating oil
 return temp. °C
 with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 027

Opening
 Pressure bar: 250.00...253.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 450

Start of delivery
 Prestroke mm: -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
 Charge press. hPa: 1000

Setting value mm: 2.00...2.40
 Shutoff
 electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
 Charge press hPa: 1000
 Setting value bar: 5.30...5.90
 Shutoff
 electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1750
 Charge press. hPa: 1000
 Del. quantity cm3/
 1000S.: 58.00...59.00
 Shutoff
 electromagnet Volt: 12
 Dispersion cm3/
 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550
 Del. quantity cm3/
 1000S.: 25.00...26.00
 Shutoff
 electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 325
 Del. quantity cm3/
 1000S.: 10.00...14.00
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/
 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2100
 Charge press hPa: 1000
 Del. quantity cm3/
 1000S.: 22.00...28.00
 Shutoff
 electromagnet Volt: 12

Start:

Speed 1/min: 100
 Del. quantity cm3/
 mind 1000S.: 40.00...90.00
 Shutoff
 electromagnet Volt: 12

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

Speed 1/min: 1250
 Charge press hPa: 1000
 Inj.-qty. cm3/
 difference 1000S.: -27.0...-35.0 #
 Shutoff
 electromagnet Volt: 12
 TD-travel dif.measurement
 correttore anticipo iniezione (SV)
 1.Speed 1/min: 1250
 Charge press hPa: 1000
 TD-travel
 difference mm: -0.7...-0.9 #
 Shutoff
 electromagnet Volt: 12

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1500
 Charge press hPa: 1000
 TD travel mm: 3.60...4.40
 mm: (3.30...4.70)

Shutoff
 electromagnet Volt: 12
 3rd speed 1/min: 1250
 Charge press hPa: 1000
 TD travel mm: 2.00...2.40
 mm: (1.50...2.90)

Shutoff
 electromagnet Volt: 12
 4th speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 0.20...1.00
 mm: (0.00...1.30)

Shutoff
 electromagnet Volt: 12
 5th speed 1/min: 1900
 Charge press. hPa: 1000
 TD travel mm: 4.50...5.30
 mm: (4.20...5.60)

Shutoff
 electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 800
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 3.60...4.20
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 5.30...5.90
 Shutoff
 electromagnet Volt: 12

3rd speed 1/min: 1900
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 7.60...8.20
 Shutoff
 electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 800
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 75.00...119.50
 quantity cm3/10s: (60.00...134.50)
 2nd speed 1/min: 1900
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Overflow : 97.30...180.70
 quantity cm3/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 800
 Charge-air pressure-setting
 point hPa: 400
 LDA-stroke mm: 7.1
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 43.00...44.00
 1000S.: (39.50...47.50)

2nd speed 1/min: 2250
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 0.00...3.00
 1000S.: (0.00...3.00)

5th speed 1/min: 2100
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 22.00...28.00
 1000S.: (20.50...29.50)

8th speed 1/min: 2000
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 41.00...49.00
 1000S.: (39.00...51.00)

9th speed 1/min: 1900
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm3/: 58.00...63.00
 1000S.: (57.00...64.00)

12th speed 1/min: 1750
 Charge press. hPa: 1000

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 58.00...59.00
 1000S.: (55.00...62.00)
 15th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 52.50...57.50
 1000S.: (51.00...59.00)
 18th speed 1/min: 550
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 25.00...26.00
 1000S.: (22.00...29.00)
 20th speed 1/min: 800
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 49.50...58.50
 1000S.: (48.50...59.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 325
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 325
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 10.00...14.00
 1000S.: (8.00...16.00)
 Dispersion cm³/: 6.0
 1000S.: (6.5)
 2nd speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1250
 Charge press. hPa: 1000
 Inj.-qty. cm³/ : -28.0...-30.0"
 difference 1000S.: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1250
 Charge press. hPa: 1000

Inj.-qty. cm³/: +2.0...+8.0'
 difference 1000S.: -
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1250
 Charge press. hPa: 1000
 TD-travel : -0.6...-1.4 '
 difference mm: -
 Shutoff
 electromagnet Volt: 12

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1250
 Charge press. hPa: 1000
 Supply pump-
 pressure : -0.1...0.3 "
 difference bar: -
 Shutoff
 electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 200
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 55.00...105.00
 1000S.: (55.00...105.00)

2nd speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 14.00...30.00
 1000S.: (14.00...30.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 40.00...90.00
 1000S.: (40.00...90.00)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
 K mm: -
 KF mm: KOT
 MS1 mm: 1.6...2.0
 SVS max. mm: 5.2
 LDA stroke mm: 7.1
 Ya mm: 37.8...39.9
 Yb mm: 44.9...50.3

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Z = Absolute delivery



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ROVER
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/11F2000R509
Type number : 0 460 414 098
Customer Part-No. :

Customer-specific information
Customer : LANDROVER 2.5 TDI

Engine : GEMINI 3 "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 116

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.54
Outlet : C

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1600

H03

Charge press. hPa: 1000
Setting value mm: 3.50...3.90
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1600
Charge press hPa: 1000
Setting value bar: 6.50...7.10
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1400
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 66.50...67.50

Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 36.00...37.00

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 8.00...12.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (4.5)

Full-load speed regulation

Speed 1/min: 2100
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 55.00...59.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 85.00...135.00
mind 1000S.: 85.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 5.20...6.00
mm: (4.70...6.50)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1600
Charge press hPa: 1000
TD travel mm: 3.50...3.90
mm: (2.90...4.50)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1200
Charge press hPa: 1000
TD travel mm: 1.10...1.90
mm: (0.60...2.40)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump pressure bar: 7.70...8.30
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1600
Charge press. hPa: 1000
Supply-pump pressure bar: 6.50...7.10
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 1200
Charge press. hPa: 1000
Supply-pump pressure bar: 5.30...5.90
Shutoff

electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...100.00
(40.60...115.00)

2nd speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 83.40...166.80
(68.40...181.80)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
Charge-air pressure-setting point hPa: 300
LDA-stroke mm: 7.0
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 51.00...52.00
(48.30...54.70)

2nd speed 1/min: 2600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 0.00...3.00
(0.00...3.00)

3rd speed 1/min: 2400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 7.00...17.00
(6.00...18.00)

5th speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 55.00...59.00
(52.00...62.00)

9th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 64.00...68.00
(62.80...69.20)

12th speed 1/min: 1400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 66.50...67.50
(64.20...69.80)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 36.00...37.00
(33.30...39.70)

20th speed 1/min: 900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 61.60...66.60
(60.10...68.10)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/1000s.: 0.00...3.00
(0.00...3.00)

Shutoff
 electromagnet volt: -
 2nd speed 1/min: 350
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet Volt: -

Idle delivery:

1st speed 1/min: 350
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 8.00...12.00
 1000S.: (5.00...15.00)

Dispersion cm³/: 4.0
 1000S.: (4.5)

2nd speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 200
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 90.00...140.00
 1000S.: (90.00...140.00)

2nd speed 1/min: 350
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 30.00...70.00
 1000S.: (30.00...70.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 85.00...135.00
 1000S.: (84.50...135.50)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: KOT
MS1	mm: 0.9...1.2
LDA stroke	mm: 7.0
Ya	mm: 42.3...46.3
Yb	mm: 50.0...61.0

Remarks:

H05

⋮
 Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
 Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
 Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ROVER
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/11F2000R509-1
Type number : 0 460 414 099
Customer Part-No. :

Customer-specific information
Customer : LANDROVER 2.5 TDI

Engine : GEMINI 3 "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 116

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.4
mm: -

Outlet : C

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1600
Charge press. hPa: 1000
Setting value mm: 3.50...3.90
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1600
Charge press hPa: 1000
Setting value bar: 6.50...7.10
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1400
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 66.50...67.50

Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 36.00...37.00

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 8.00...12.00

Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 4.0
1000S.: (4.5)

Full-load speed regulation

Speed 1/min: 2100
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 55.00...59.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 44.00...46.00 V
mind 1000S.: 44.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 5.10...5.90
mm: (4.60...6.40)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1600
Charge press hPa: 1000
TD travel mm: 3.10...3.50
mm: (2.50...4.10)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 1400
Charge press hPa: 1000
TD travel mm: 1.60...2.40
mm: (1.10...2.90)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.70...8.30
Shutoff

electromagnet Volt: 24
2nd speed 1/min: 1600
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.50...7.10
Shutoff

electromagnet Volt: 24
3rd speed 1/min: 1400
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.80...6.40
Shutoff

electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 55.60...100.00
cm³/10s: (40.60...115.00)

2nd speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 83.40...166.80
cm³/10s: (68.40...181.80)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
Charge-air pressure-setting
point hPa: 300
LDA-stroke mm: 7.0
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 51.00...52.00
cm³/1000S.: (48.30...54.70)

2nd speed 1/min: 2600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 0.00...3.00
cm³/1000S.: (0.00...3.00)

3rd speed 1/min: 2400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 7.00...17.00
cm³/1000S.: (6.00...18.00)

5th speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 55.00...59.00
cm³/1000S.: (52.00...62.00)

9th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 64.00...68.00
cm³/1000S.: (62.80...69.20)

12th speed 1/min: 1400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 66.50...67.50
cm³/1000S.: (64.20...69.8)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 36.00...37.00
cm³/1000S.: (33.30...39.70)

20th speed 1/min: 900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 61.60...66.60
cm³/1000S.: (60.10...68.10)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 350

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -
2nd speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet Volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 8.00...12.00
1000S.: (5.00...15.00)

Dispersion cm³/: 4.0
1000S.: (4.5)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Part-load del. at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 38.00...40.00
1000S.: (35.00...43.00)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 90.00...140.00
1000S.: (90.00...140.00)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 30.00...70.00
1000S.: (30.00...70.00)

3rd speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 97.0...99.0 "v"
1000S.: (90.50...105.50)

4th speed 1/min: 100

H08

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 44.0...46.0 "L"
1000S.: (37.50...52.50)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: KOT
MS1 mm: 1.1...1.5
LDA stroke mm: 7.0
Ya mm: 42.3...46.3
Yb mm: 50.0...61.0

Remarks:

Operate control lever after each
manifold-pressure compensator pressure
change.

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Starting delivery check
V = Speed-control lever in full-load
position

Starting delivery check
L = Speed-control lever in idle
position

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEN
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/11F1900L519
Type number : O 460 414 101
Customer Part-No. :

Customer-specific information
Customer : PENTA

Engine : TAMD 31 "DI"

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 110

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): +0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 1.80...2.20

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 6.40...7.00

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 56.50...57.50
Dispersion cm3/
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 650
Del. quantity cm3/
1000S.: 35.00...36.00

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm3/
1000S.: 11.00...15.00
Del. quantity cm3/
1000S.: (6.0)

Full-load speed regulation

Speed 1/min: 2150
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 19.00...25.00

Start:

Speed 1/min: 100
Del. quantity cm3/: 20.00...70.00
mind 1000S.: 20.00

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1900
Charge press hPa: 1000
TD travel mm: 4.00...4.80
mm: (3.70...5.10)

3rd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 1.80...2.20
mm: (1.30...2.70)

6th speed 1/min: 1700
Charge press. hPa: 1000
TD travel mm: 2.60...3.60
mm: (2.40...3.80)

Supply-pump pressure characteristic:

1st speed 1/min: 1900
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.70...8.30
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.40...7.00
3rd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.80...4.40

Overflow quantity at overflow valve:

1st speed 1/min: 650
Charge press. hPa: -
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1900
Charge press. hPa: 1000
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 900
Charge-air pressure-setting
point hPa: 300
LDA-stroke mm: 7.5
Del. quantity cm³/: 46.50...47.50
1000S.: (44.00...50.00)
2nd speed 1/min: 2250
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
5th speed 1/min: 2150
Charge press. hPa: 1000
Del. quantity cm³/: 19.00...25.00
1000S.: (18.00...26.00)
9th speed 1/min: 1900
Charge press. hPa: 1000
Del. quantity cm³/: 53.50...56.50
1000S.: (52.00...58.00)
10th speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm³/: 56.00...61.00
1000S.: -
12th speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/: 56.50...57.50
1000S.: (54.50...59.50)
18th speed 1/min: 650
Charge press. hPa: -
Del. quantity cm³/: 35.00...36.00
1000S.: (32.50...37.50)
20th speed 1/min: 750
Charge press. hPa: 1000

Del. quantity cm³/: 56.00...61.00
1000S.: -

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1900
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Electr. shutoff:

1st speed 1/min: 300
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Idle delivery:

1st speed 1/min: 300
Del. quantity cm³/: 11.00...15.00
1000S.: (8.00...18.00)

Dispersion cm³/: 6.0
1000S.: (6.0)

2nd speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 250
Del. quantity cm³/: 17.00...29.00
1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 300
Del. quantity cm³/: 60.00...100.00
1000S.: (60.00...100.00)

2nd speed 1/min: 500
Del. quantity cm³/: 20.00...50.00
1000S.: (20.00...50.00)

4th speed 1/min: 100
Del. quantity cm³/: 20.00...70.00
1000S.: (20.00...70.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -

KF	mm: KOT
MS	mm: 1.1...1.5
SVS max.	mm: 7.5
Ya	mm: 37.2...39.2
Yb	mm: 53.0...61.0

Remarks:

:
Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : S0F
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/11F1900R521
Type number : 0 460 414 102
Customer Part-No. :

Customer-specific information
Customer : IVECO-SOFIM
Engine : 8140.27.2585 "D1"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 453 344

Calibrating-oil
return temp. °C
with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400
Charge press. hPa: 1200
Setting value mm: 2.90...3.10
Shutoff
electromagnet volt: 12

H12

Supply-pump pressure

Speed 1/min: 1400
Charge press hPa: 1200
Setting value bar: 6.60...7.20
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1750
Charge press. hPa: 1200
Del. quantity cm3/
1000S.: 50.50...51.50
Shutoff
electromagnet Volt: 12
Dispersion cm3/ 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550
Del. quantity cm3/
1000S.: 26.00...27.00
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm3/
1000S.: 8.00...12.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/ 6.0
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2100
Charge press hPa: 1200
Del. quantity cm3/
1000S.: 33.00...37.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/ 40.00...90.00
mind 1000S.: 40.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1400
Charge press hPa: 1200

Inj.-qty. cm³/
difference 1000S.: -18.0...-26.0 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1400
Charge press hPa: 1200
TD-travel
difference mm: -0.7...-0.9 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1750
Charge press hPa: 1200
TD travel mm: 5.30...5.90
mm: (4.90...6.30)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1400
Charge press hPa: 1200
TD travel mm: 2.90...3.10
mm: (2.30...3.70)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1250
Charge press hPa: 1200
TD travel mm: 1.60...2.20
mm: (1.20...2.60)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 1900
Charge press. hPa: 1200
TD travel mm: 5.30...5.90
mm: (4.90...6.30)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 800
Charge press. hPa: 1200
Supply-pump
pressure bar: 3.80...4.40
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1400
Charge press. hPa: 1200
Supply-pump
pressure bar: 6.60...7.20
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 1900
Charge press. hPa: 1200

Supply-pump
pressure bar: 8.70...9.30
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Overflow : 75.00...119.50
quantity cm³/10s: (60.00...134.50)
2nd speed 1/min: 1900
Charge press. hPa: 1200
Shutoff

electromagnet Volt: 12
Overflow : 97.30...180.70
quantity cm³/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 800
Charge-air pressure-setting
point hPa: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.50...46.50
1000S.: (42.00...50.00)

2nd speed 1/min: 2300
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 2100
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 33.00...37.00
1000S.: (30.50...39.50)

8th speed 1/min: 2000
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 43.00...51.00
1000S.: (41.00...53.00)

9th speed 1/min: 1900
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 48.50...53.50
1000S.: (47.50...54.50)

12th speed 1/min: 1750
Charge press. hPa: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.50...51.50
1000S.: (47.50...54.50)

15th speed 1/min: 1000
 Charge press. hPa: 1200
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 45.00...50.00
 1000S.: (43.50...51.50)

16th speed 1/min: 800
 Charge press. hPa: -
 Shutoff
 electromagnet volt: 12
 Del. quantity cm³/: 26.50...31.50
 1000H.: (25.50...32.50)

18th speed 1/min: 550
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 26.00...27.00
 1000S.: (23.00...30.00)

20th speed 1/min: 800
 Charge press. hPa: 1200
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 45.50...54.50
 1000S.: (44.50...55.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 300
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 8.00...12.00
 1000S.: (6.00...14.00)
 Dispersion cm³/: 6.0
 1000S.: (6.5)
 2nd speed 1/min: 425
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1400
 Charge press. hPa: 1200
 Inj.-qty. cm³/ : -19.0...-21.0'
 difference 1000S.: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1400

Charge press. hPa: 1200
 Inj.-qty. cm³/: 0.0...+3.0 ' z
 difference 1000S.: -
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1400
 Charge press. hPa: 1200
 TD-travel : -0.70...-0.90'
 difference mm: -
 Shutoff
 electromagnet Volt: 12

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1400
 Charge press. hPa: 1200
 Supply pump-
 pressure : -0.10...-0.30"
 difference bar: -
 Shutoff
 electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 200
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 55.00...105.00
 1000S.: (55.00...105.00)

2nd speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 14.00...30.00
 1000S.: (14.00...30.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 40.00...90.00
 1000S.: (40.00...90.00)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
 K mm: K1
 KF mm: -
 MS mm: 1.2...1.6
 Ya mm: 37.9...39.9
 Yb mm: 44.9...50.1

Remarks:

:
Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : S0F
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/11F1900R542
Type number : G 460 414 105
Customer Part-No. :

Customer-specific information
Customer : IVECC-SOFIM

Engine : 8140.47.2200 "DI"

Power KW: 83
Speed 1/min: 1900

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400
Charge press. hPa: 1000

Setting value mm: 2.40...2.60
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1400
Charge press hPa: 1000
Setting value bar: 6.40...7.00
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1750
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 60.50...61.50
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550
Del. quantity cm³/
1000S.: 23.00...24.00
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 325
Del. quantity cm³/
1000S.: 10.00...14.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.0
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2100
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 38.00...46.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 40.00...90.00
mind 1000S.: 40.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1400
Charge press hPa: -
Inj.-qty. cm³/
difference 1000S.: -15.0...-23.0 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1400
Charge press hPa: -
TD-travel
difference mm: -0.8...-1.0 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1600
Charge press hPa: 1000
TD travel mm: 3.50...4.10
mm: (3.10...4.50)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1400
Charge press hPa: 1000
TD travel mm: 2.40...2.60
mm: (1.80...3.20)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 1.20...1.80
mm: (0.80...2.20)

Shutoff
electromagnet Volt: 12
5th speed 1/min: 1900
Charge press. hPa: 1000
TD travel mm: 4.60...5.20
mm: (4.20...5.60)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 800
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.20...4.80
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1400
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.40...7.00
Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1900
Charge press. hPa: 1000
Supply-pump
pressure bar: 8.10...8.70
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 75.00...119.50
quantity cm³/10s: (60.00...134.50)

2nd speed 1/min: 1900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 97.30...180.70
quantity cm³/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 800
Charge-air pressure-setting
point hPa: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 48.50...49.50
1000S.: (45.00...53.00)

2nd speed 1/min: 2325
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 2175
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...31.00
1000S.: (23.50...32.50)

5th speed 1/min: 2100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 38.00...46.00
1000S.: (36.00...48.00)

9th speed 1/min: 1900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 58.50...63.50
1000S.: (57.50...64.50)

12th speed 1/min: 1750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 60.50...61.50
 1000S.: (57.50...64.50)
 15th speed 1/min: 1250
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 55.50...60.50
 1000S.: (54.00...62.00)
 16th speed 1/min: 800
 Charge press. hPa: 1000
 Shutoff
 electromagnet volt: 12
 Del. quantity cm³/: 54.00...63.00
 1000H.: (53.00...64.00)
 18th speed 1/min: 550
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 23.00...24.00
 1000S.: (20.00...27.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 325
 Charge press. hPa: -
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 325
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 10.00...14.00
 1000S.: (8.00...16.00)
 Dispersion cm³/: 6.0
 1000S.: (6.5)
 2nd speed 1/min: 450
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1400
 Charge press. hPa: -
 Inj.-qty. cm³/: -15.5...17.5 "
 difference 1000S.: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1400
 Charge press. hPa: -
 Inj.-qty. cm³/: +2.0...+8.0' Z
 difference 1000S.: -

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1400
 Charge press. hPa: -
 TD-travel : -1.0...-1.8 "
 difference mm: -
 Shutoff
 electromagnet Volt: 12

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1400
 Charge press. hPa: -
 Supply pump-
 pressure : -0.1...0.3 "
 difference bar: -
 Shutoff
 electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 200
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 55.00...105.00
 1000S.: (55.00...105.00)

2nd speed 1/min: 500
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 14.00...30.00
 1000S.: (14.00...30.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 40.00...90.00
 1000S.: (40.00...90.00)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: K1
KF	mm: KOT
MS	mm: 1.4...1.6
Ya	mm: 33.0...35.0
Yb	mm: 46.4...52.4

Remarks:

:
 :
 Operate control lever after each
 manifold-pressure compensator pressure

change.

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEIV
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/11F2050L540
Type number : 0 460 414 106
Customer Part-No. :

Customer-specific information
Customer : PENTA

Engine : TAMD 31 P 5424

Power KW: 117
Speed 1/min: 2050

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 110

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.0
x Wall thickness : 2.0
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1000

H2O

Setting value mm: 2.50...2.90

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 6.90...7.50

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 64.00...65.00
Dispersion cm³/
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 650
Del. quantity cm³/
1000S.: 35.00...36.00

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm³/
1000S.: 11.00...15.00
Del. quantity cm³/
1000S.: (6.0)

Full-load speed regulation

Speed 1/min: 2150
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 45.00...49.00

Start:

Speed 1/min: 100
Del. quantity cm³/
mind 1000S.: 20.00...70.00

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1700
Charge press hPa: 1000
TD travel mm: 3.90...4.70
mm: (3.40...5.20)

3rd speed 1/min: 1500
Charge press hPa: 1000
TD travel mm: 2.50...2.90
mm: (2.00...3.40)

4th speed 1/min: 1300
Charge press hPa: 1000

TD travel mm: 0.70...1.50
mm: (0.20...2.00)

Supply-pump pressure characteristic:

1st speed 1/min: 2050
Charge press. hPa: 1000
Supply-pump pressure bar: 8.70...9.30
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump pressure bar: 6.90...7.50
3rd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump pressure bar: 4.20...4.80

Overflow quantity at overflow valve:

1st speed 1/min: 650
Charge press. hPa: -
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)
2nd speed 1/min: 2050
Charge press. hPa: 1000
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 900
Charge-air pressure setting point hPa: 400
Del. quantity cm³/1000S.: 57.50...58.50
(55.00...61.00)
2nd speed 1/min: 2300
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)
3rd speed 1/min: 2200
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 15.00...39.00
5th speed 1/min: 2150
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 45.00...49.00
(41.00...53.00)
9th speed 1/min: 2050
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 55.00...60.00
(54.50...60.50)
10th speed 1/min: 750
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 66.50...71.50
(64.00...74.00)
12th speed 1/min: 1500
Charge press. hPa: 1000

Del. quantity cm³/1000S.: 64.00...65.00
(62.00...67.00)

16th speed 1/min: 650
Charge press. hPa: -
Del. quantity cm³/1000S.: 35.00...36.00
(33.00...38.00)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 2050
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff electromagnet volt: -

Electr. shutoff:

1st speed 1/min: 300
Charge press. hPa: -
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff electromagnet volt: 12

Idle delivery:

1st speed 1/min: 300
Del. quantity cm³/1000S.: 11.00...15.00
(8.00...18.00)
Dispersion cm³/1000S.: 6.0
(6.0)

2nd speed 1/min: 400
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

5th speed 1/min: 250
Del. quantity cm³/1000S.: 20.00...40.00
1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 300
Del. quantity cm³/1000S.: 60.00...100.00
(60.00...100.00)

2nd speed 1/min: 500
Del. quantity cm³/1000S.: 20.00...50.00
(20.00...50.00)

4th speed 1/min: 100
Del. quantity cm³/1000S.: 20.00...70.00
(20.00...70.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: KOT
MS	mm: 1.1...1.5
Ya	mm: 37.2...39.2
Yb	mm: 48.5...56.5

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F125CR359
Type number : 0 460 424 054
Customer Part-No. : 3 919 403

Customer-specific information
Customer : CDC

Engine : 4 BTA AUTO

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.25
mm: +0.02(0.06)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100

H23

Charge press. hPa: 1000
Setting value mm: 2.00...2.40
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 5.30...5.90
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 83.00...84.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/ 4.0
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 53.00...54.00
KSB/AFB 11
valve Volt: 12
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 10.00...12.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/ 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1330
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 68.00...74.00
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 80.00...140.00
mind 1000s.: 80.00
KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.80...3.60
mm: (2.50...3.90)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 2.00...2.40
mm: (1.50...2.90)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 0.90...1.70
mm: (0.60...2.00)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
8th speed 1/min: 400*
Charge press. hPa: -
TD travel mm: 2.90...3.90
mm: -

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 2.60...3.20
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.90...5.50
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.30...5.90
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.00...6.60
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1250
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 535
LDA-stroke mm: 6.4
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 71.50...72.50
1000s.: (68.00...76.00)
2nd speed 1/min: 1500

Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 3rd speed 1/min: 1430
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 15.00...45.00
 1000S.: (15.00...45.00)
 5th speed 1/min: 1330
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 68.00...74.00
 1000S.: (65.00...77.00)
 9th speed 1/min: 1250
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 76.50...79.50
 1000S.: (75.00...81.00)
 10th speed 1/min: 1100
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 77.50...80.50
 1000S.: (75.50...82.50)
 12th speed 1/min: 850
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 83.00...84.00
 1000S.: (80.50...86.50)
 18th speed 1/min: 500
 Charge press. hPa: -
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 53.00...54.00
 1000S.: (49.50...57.50)
 20th speed 1/min: 500
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 94.00...103.0
 1000S.: -

Mech. shutoff:
 Mech. Abst \ddot{u} llung:

1st speed 1/min: 1250
 Charge press. hPa: 1000
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: 12
 KSB/AFB
 valve Volt: 12

Electr. shutoff:

1st speed 1/min: 375
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: 12

Idle delivery:

1st speed 1/min: 375
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 10.00...12.00
 1000S.: (6.00...16.00)

Dispersion cm³/: 5.5
 1000S.: (7.0)

2nd speed 1/min: 450
 KSB/AFB
 valve Volt: 12

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...2.00
 1000S.: (0.00...2.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 80.00...140.00
 1000S.: (80.00...140.00)

2nd speed 1/min: 250
 KSB/AFB
 valve Volt: 12

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...40.00
1000S.: (20.00...40.00)

4th speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 80.00...140.00
1000S.: (80.00...140.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: KOT
MS1 mm: 1.2...1.5
SVS max. mm: 2.3
LDA stroke mm: 6.4
Ya mm: 34.8...38.8
Yb mm: 40.3...45.7

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/12F1250R359-1
Type number : 0 460 424 055
Customer Part-No. : 3 919 401

Customer-specific information
Customer : CDC

Engine : 4 BTA AUTO

Power KW: 77
Speed 1/min: 1250

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 1.00
mm: ±0.02(0.06)

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 1.90...2.30
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 5.40...6.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 850
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 73.00...74.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 43.50...44.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 7.50...11.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1340
Charge press hPa: 1000

Del. quantity cm³/
1000S.: 54.00...60.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 80.00...140.00
mind 1000S.: 80.00
KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.90...3.70
mm: (2.60...4.00)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 1.90...2.30
mm: (1.40...2.80)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

4th speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 0.60...1.55
mm: (0.40...1.80)

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

8th speed 1/min: 400*
Charge press. hPa: -
TD travel mm: 2.70...3.70
mm: -

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000

Supply-pump
pressure bar: 2.70...3.30

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

2nd speed 1/min: 900
Charge press. hPa: 1000

Supply-pump
pressure bar: 4.40...5.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1100
Charge press. hPa: 1000

Supply-pump
pressure bar: 5.40...6.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

4th speed 1/min: 1250
Charge press. hPa: 1000

Supply-pump
pressure bar: 6.00...6.60

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 1250
Charge press. hPa: 1000

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 600

LDA-stroke mm: 6.4
KSB/AFB
valve Volt: 12

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 70.50...71.50
1000S.: (67.00...75.00)
2nd speed 1/min: 1500
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
3rd speed 1/min: 1460
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)
5th speed 1/min: 1340
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 54.00...60.00
1000S.: (51.00...63.00)
9th speed 1/min: 1250
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 69.50...70.50
1000S.: (67.00...73.00)
12th speed 1/min: 850
Charge press. hPa: 1000
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 73.00...74.00
1000S.: (70.50...76.50)
18th speed 1/min: 500
Charge press. hPa: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 43.50...44.50
1000S.: (40.00...48.00)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12
KSB/AFB
valve Volt: 12

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -
KSB/AFB
valve Volt: 12

Idle delivery:

1st speed 1/min: 350
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.50...11.50
1000S.: (4.50...14.50)
Dispersion cm³/: 5.5
1000S.: (7.0)
2nd speed 1/min: 400
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

Automatic starting fuel delivery:

1st speed 1/min: 150
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 80.00...
1000S.: -

2nd speed 1/min: 280
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: ... 80.00
1000S.: -

4th speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 90.00...
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: KOT
MS1	mm: 1.6...1.9
SVS max.	mm: 2.4
LDA stroke	mm: 6.4
Ya	mm: 34.8...38.8
Yb	mm: 40.9...45.3

Operate control lever after each manifold-pressure compensator pressure change. :

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

* Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN
Edition : 03.94
Calibrating oil : ISO-4113

Injection pump : VE4/12F1300R558
Type number : 0 450 424 100
Customer Part-No. :

Customer-specific information
Customer : PERKINS

Engine : Phaser 135 TI "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
Charge press. hPa: 1500
Setting value mm: 1.60...1.80
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 900
Charge press hPa: 1500

J03

Setting value bar: 6.30...6.90
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 1500
Del. quantity cm3/
1000S.: 90.50...91.50

Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 60.50...61.50

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm3/
1000S.: 8.00...12.00

Shutoff
electromagnet Volt: 24
Del. quantity cm3/
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1450
Charge press hPa: 1500
Del. quantity cm3/
1000S.: 65.00...69.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 100.00...160.00
mind 1000S.: 100.0

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
Charge press hPa: 1500
TD travel mm: 2.50...3.10
mm: (2.10...3.50)

Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 900
 Charge press hPa: 1500
 TD travel mm: 1.60...1.80
 mm: (1.20...2.20)

Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 800
 Charge press hPa: 1500
 TD travel mm: 0.40...1.00
 mm: (0.10...1.30)

Shutoff
 electromagnet Volt: 24
 5th speed 1/min: 1300
 Charge press. hPa: 1500
 TD travel mm: 3.00...3.60
 mm: (2.60...4.00)

Shutoff
 electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 1300
 Charge press. hPa: 1500
 Supply-pump pressure bar: 8.00...8.60
 Shutoff
 electromagnet Volt: 24
 2nd speed 1/min: 900
 Charge press. hPa: 1500
 Supply-pump pressure bar: 6.30...6.90
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 500
 Charge press. hPa: 1500
 Supply-pump pressure bar: 4.50...5.10
 Shutoff
 electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 700
 Charge press. hPa: 1500
 Shutoff
 electromagnet Volt: 24
 Overflow : 41.70...86.10
 quantity cm³/10s: (26.70...101.10)
 2nd speed 1/min: 1300
 Charge press. hPa: 1500
 Shutoff
 electromagnet Volt: 24
 Overflow : 55.60...139.00
 quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
 Charge-air pressure-setting point hPa: 650
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 79.00...80.00
 1000S.: (76.50...82.50)

2nd speed 1/min: 1600
 Charge press. hPa: 1500
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

3rd speed 1/min: 1500
 Charge press. hPa: 1500
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 27.00...43.00
 1000S.: (25.00...45.00)

5th speed 1/min: 1450
 Charge press. hPa: 1500
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 65.00...69.00
 1000S.: (61.00...73.00)

9th speed 1/min: 1300
 Charge press. hPa: 1500
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 100.00...104.00
 1000S.: (98.50...105.50)

12th speed 1/min: 1000
 Charge press. hPa: 1500
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 90.50...91.50
 1000S.: (88.00...94.00)

16th speed 1/min: 700
 Charge press. hPa: -
 Shutoff
 electromagnet volt: 24
 Del. quantity cm³/: 57.00...62.00
 1000H.: (56.00...63.00)

18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 60.50...61.50
 1000S.: (58.00...64.00)

20th speed 1/min: 700
 Charge press. hPa: 1500
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 88.00...92.00
 1000S.: (86.50...93.50)

Mech. shutoff:
 Mech. Abstelligung:

1st speed 1/min: 1300

Charge press. hPa: 1500
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 300
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 8.00...12.00
1000S.: (5.00...15.00)
Dispersion cm³/: 5.0
1000S.: (5.0)

2nd speed 1/min: 400
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 100.00...160.00
1000S.: (100.00...160.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 35.00...75.00
1000S.: (35.00...75.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 100.00...160.00
1000S.: (100.00...160.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: KOT

J05

MS1 mm: 1.0...1.4
Ya mm: 31.5...33.5
Yb mm: 52.9...61.5

Remarks:

:
Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 02.94
replaces : 11.86
Calibrating oil : ISO-4113

Injection pump : VES/12F14COR2?2
Type number : 0 460 426 077
Customer Part-No. :

Customer-specific information
Customer : CDC

Engine : 6 BT-5.9 AUTO

Power KW: 118
Speed 1/min: 1400

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): ±0.02(0.04)

Start of delivery block
Piston stroke mm: 1.1
mm: ±0.02(0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
Charge press. hPa: 1000
Setting value mm: 4.20...4.60
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 900
Charge press hPa: 1000
Setting value bar: 4.10...4.70
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 900
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 67.00...68.00
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 30.50...31.50
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 360
Del. quantity cm3/
1000S.: 8.00...14.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1530
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 49.00...55.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 45.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 5.50...6.30
mm: (5.20...6.60)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 4.20...4.60
mm: (3.70...5.10)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 500
Charge press hPa: 1000
TD travel mm: 0.40...1.20
mm: (0.10...1.50)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

2nd speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 2.40...3.00

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 900
Charge press. hPa: 1000
Supply-pump pressure bar: 4.10...4.70

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1400
Charge press. hPa: 1000
Supply-pump pressure bar: 6.10...6.70

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)

2nd speed 1/min: 1400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 500
LDA-stroke mm: 6.7
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 58.50...59.50
(55.00...63.00)

2nd speed 1/min: 1700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 0.00...3.00
(0.00...3.00)

4th speed 1/min: 1620
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 15.00...55.00
(15.00...55.00)

5th speed 1/min: 1530
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 49.00...55.00
(46.00...58.00)

9th speed 1/min: 1400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 61.50...64.50
(60.00...66.00)

10th speed 1/min: 1100
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 64.50...67.50
(62.50...69.50)

12th speed 1/min: 900
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 67.00...68.00
(64.50...70.50)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 30.50...31.50
(27.00...35.00)

20th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 64.50...72.50
1000S.: -

Mech. shutoff:
Mech. Abst \ddot{u} llung:

1st speed 1/min: 1400
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 360
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 360
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 8.00...14.00
1000S.: (6.00...16.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.00...115.00
1000S.: (55.00...115.00)

2nd speed 1/min: 480
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 15.00...55.00
1000S.: (15.00...55.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...105.00
1000S.: (45.00...105.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 1.1...1.5
SVS max.	mm: 1.5
LDA stroke	mm: 6.7
Ya	mm: 35.8...37.8
Yb	mm: 40.2...45.6

Remarks:

: C.D.C. # 390 8197

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : NIS
Edition : 20.09.93
replaces : 18.01.89
Calibrating oil : ISO-4113
injection pump : VE6/12F14J0R325
Type number : 0 460 426 117
Customer Part-No. :

Customer-specific information
Customer : NISSAN

Engine : M 36 TC 125KW

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 2.10...2.50
Shutoff
electromagnet Volt: 24

J09

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 6.60...7.20
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 800
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 96.00...97.00
Shutoff
electromagnet Volt: 24
Dispersion cm3/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 68.50...69.50
Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 16.50...20.50
Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 5.0
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1600
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 34.00...40.00
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 100.00...150.00
mind 1000S.: 100.0
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 2.10...2.50
mm: (1.60...3.00)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 0.70...1.50
mm: (0.40...1.80)

Shutoff
electromagnet Volt: 24
5th speed 1/min: 1400
Charge press. hPa: 1000
TD travel mm: 3.70...4.50
mm: (3.40...4.80)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 1400
Charge press. hPa: 1000
Supply-pump pressure bar: 7.90...8.50
Shutoff

electromagnet Volt: 24
2nd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump pressure bar: 6.60...7.20
Shutoff

electromagnet Volt: 24
3rd speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 3.80...4.40
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 75.00...119.50
(60.00...134.50)

2nd speed 1/min: 1400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 97.30...180.70
(82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 800
Charge-air pressure-setting point hPa: 350

LDA-stroke mm: 7.2
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 81.00...82.00
(78.50...84.50)

2nd speed 1/min: 1700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

5th speed 1/min: 1600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 34.00...40.00
(31.00...43.00)

9th speed 1/min: 1400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 83.50...86.50
(82.00...88.00)

10th speed 1/min: 800
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 96.00...97.00
(93.50...99.50)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000S.: 68.50...69.50
(66.00...72.00)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1400
Charge press. hPa: 1000
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff
electromagnet Volt: 24

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff
electromagnet Volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24

Del. quantity cm³/: 16.50...20.50
1000S.: (13.50...23.50)
Dispersion cm³/: 5.0
1000S.: (5.0)
2nd speed 1/min: 450
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 120.00...160.00
1000S.: (95.00...145.00)

2nd speed 1/min: 300
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 55.00...75.00
1000S.: (55.00...75.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 100.00...150.00
1000S.: (100.00...150.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3.5...3.9
KF mm: K-OT
MS mm: 1.1...1.5
Ya mm: 37.2...39.2
Yb mm: 49.3...57.6

Remarks:

* Correction at adjusting nut

Operate control lever after each manifold-pressure compensator pressure change.

Overflow restriction 0.75 mm - Part No. ..343,..344

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control

lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 02.94
replaces : 08.07.92
Calibrating oil : ISO-4113

Injection pump : VE6/12F1000R369
Type number : 0 460 426 138
Customer Part-No. :

Customer-specific information
Customer : CASE

Engine : 6BT- 5.9 IND.

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.5
mm: $\pm 0.02(0.06)$

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
Setting value mm: 3.00...3.40
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750
Setting value bar: 3.30...3.90
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 850
Del. quantity cm³/
1000S.: 66.50...67.50

Shutoff
electromagnet Volt: 24
Dispersion cm³/: 4.0
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm³/
1000S.: 6.00...12.00

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 5.5
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1040
Del. quantity cm³/
1000S.: 53.00...59.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 60.00...120.00
mind 1000S.: 60.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
TD travel mm: 4.60...5.40
mm: (4.30...5.70)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 750

TD travel mm: 3.00...3.40
mm: (2.50...3.90)

Shutoff
electromagnet Volt: 24

4th speed 1/min: 500
TD travel mm: 0.90...1.70
mm: (0.60...2.00)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump pressure bar: 2.30...2.90
Shutoff
electromagnet Volt: 24

2nd speed 1/min: 750
Supply-pump pressure bar: 3.30...3.90
Shutoff
electromagnet Volt: 24

3rd speed 1/min: 1000
Supply-pump pressure bar: 4.50...5.10
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 41.70...86.10
(26.70...101.20)

2nd speed 1/min: 1000
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1120
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1060
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 25.00...55.00
1000S.: (25.00...55.00)

5th speed 1/min: 1040
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 53.00...59.00
1000S.: (50.00...62.00)

9th speed 1/min: 1000

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 63.50...66.50
1000S.: (62.00...68.00)

12th speed 1/min: 850
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 66.50...67.50
1000S.: (64.00...70.00)

15th speed 1/min: 750
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 63.00...66.00
1000S.: (61.00...68.00)

20th speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 40.50...48.50
1000S.: (38.50...50.50)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1000
Del. quantity cm³/: 0.00...3.0
1000S.: -

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 6.00...12.00
1000S.: (4.00...14.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 70.00...130.00
1000S.: (70.00...130.00)

2nd speed 1/min: 240
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 5.00...35.00
1000S.: (5.00...35.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...120.00
1000S.: (60.00...120.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation:

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 0.8...1.2
SVS max.	mm: 1.2
XK	mm: 18.8...20.8
XL	mm: 9.9...13.3
Ya	mm: 34.8...38.8
Yb	mm: 38.2...43.4

Remarks:

: C.D.C. # 391 7563

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 02.94
replaces : 10.06.92
Calibrating oil : ISO-4113

Injection pump : VE6/12F1150R225-23
Type number : 0 460 426 143
Customer Part-No. :

Customer-specific information
Customer : C0C

Engine : 6 BT -5.9 IND

TEST BENCH REQUIREMENTS

Overflow restricti: 1 453 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): +0.02(0.04)

Start of delivery block
Piston stroke mm: 1.3
mm: +0.02(0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
Setting value mm: 3.40...3.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 750
Setting value bar: 3.50...4.10
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 900
Del. quantity cm3/
1000S.: 71.50...72.50
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 8.00...14.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1190
Del. quantity cm3/
1000S.: 50.00...56.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 60.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
TD travel mm: 5.50...6.30
mm: (5.20...6.60)
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 750

TD travel mm: 3.40...3.80
mm: (2.90...4.30)

Shutoff
electromagnet Volt: 12

4th speed 1/min: 500

TD travel mm: 1.50...2.30
mm: (1.20...2.60)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump pressure bar: 2.40...3.00

Shutoff
electromagnet Volt: 12

2nd speed 1/min: 750

Supply-pump pressure bar: 3.50...4.10

Shutoff
electromagnet Volt: 12

3rd speed 1/min: 1100

Supply-pump pressure bar: 4.80...5.40

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500

Shutoff
electromagnet Volt: 12

Overflow : 41.70...86.10

quantity cm³/10s: (26.70...101.20)

2nd speed 1/min: 1150

Shutoff
electromagnet Volt: 12

Overflow : 55.60...139.00

quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1300

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1220

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 15.00...55.00
1000S.: (15.00...55.00)

5th speed 1/min: 1190

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 50.00...56.00
1000S.: (47.00...59.00)

9th speed 1/min: 1150

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 66.50...69.50
1000S.: (65.00...71.00)

12th speed 1/min: 900

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 71.50...72.50
1000S.: (69.00...75.00)

20th speed 1/min: 500

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 53.00...61.00
1000S.: (51.00...63.00)

Mech. shutoff:
Mech. Abst \ddot{u} llung:

1st speed 1/min: 1150

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 375

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 375

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 8.00...14.00
1000S.: (6.00...16.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 450

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 70.00...130.00
1000S.: (70.00...130.00)

2nd speed 1/min: 240

Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 20.00...60.00
1000S.: (20.00...60.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 60.00...120.00
1000S.: (60.00...120.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 0.8...1.2
SVS max.	mm: 1.3
XK	mm: 20.2...22.2
XL	mm: 11.5...14.9
Ya	mm: 35.8...37.8
Yb	mm: 41.7...47.1

Remarks:

: C.D.C. # 391 8282
: C.D.C. # 391 6949

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
Edition : 14.02.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1300R386
Type number : 0 460 426 162
Customer Part-No. :

Customer-specific information
Customer : PERKINS

Engine : 6.60 PHASER 125

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
Pressure bar: 172.00...175.00

Perforated-plate
diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.5
(from BDC): ±0.02(0.04)

Start of delivery block
Piston stroke mm: 1,0
mm: ±0.02(0.06)

Outlet : C

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Setting value mm: 1.80...2.20
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1100
Setting value bar: 5.20...5.80
Shutoff
electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 1000
Del. quantity cm³/
1000S.: 76.50...77.50
Shutoff
electromagnet Volt: 24
Dispersion cm³/: 3,5
1000S.: (4.0)

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm³/
1000S.: 19.50...23.50
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 3.5
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1400
Del. quantity cm³/
1000S.: 44.50...50.50
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 75.00...105.00
mind 1000S.: 75.00
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1300
TD travel mm: 2.80...3.60
mm: (2.50...3.90)
Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1100

TD travel mm: 1.80...2.20
 mm: (1.30...2.70)

Shutoff
 electromagnet Volt: 24

4th speed 1/min: 950

TD travel mm: 0.40...1.00
 mm: (0.00...1.40)

Shutoff
 electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump pressure bar: 2.70...3.30

Shutoff
 electromagnet Volt: 24

2nd speed 1/min: 1100

Supply-pump pressure bar: 5.20...5.80

Shutoff
 electromagnet Volt: 24

3rd speed 1/min: 1300

Supply-pump pressure bar: 6.10...6.70

Shutoff
 electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500

Shutoff
 electromagnet Volt: 24

Overflow quantity cm³/10s: 41.70...83.40
 (26.70...98.40)

2nd speed 1/min: 1300

Shutoff
 electromagnet Volt: 24

Overflow quantity cm³/10s: 55.60...139.00
 (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1530

Shutoff
 electromagnet Volt: 24

Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)

3rd speed 1/min: 1480

Shutoff
 electromagnet Volt: 24

Del. quantity cm³/1000S.: 14.00...22.00
 (11.00...25.00)

5th speed 1/min: 1400

Shutoff
 electromagnet Volt: 24

Del. quantity cm³/1000S.: 44.50...50.50
 (41.50...53.50)

9th speed 1/min: 1300

Shutoff
 electromagnet Volt: 24

Del. quantity cm³/1000S.: 69.20...72.80
 (67.50...74.50)

11th speed 1/min: 700

Shutoff
 electromagnet Volt: 24

Del. quantity cm³/1000S.: 71.00...75.00
 (69.50...76.50)

12th speed 1/min: 1000

Shutoff
 electromagnet Volt: 24

Del. quantity cm³/1000S.: 76.50...77.50
 (74.00...80.00)

20th speed 1/min: 500

Shutoff
 electromagnet Volt: 24

Del. quantity cm³/1000S.: 63.50...67.50
 (62.00...69.00)

Mech. shutoff:
 Mech. Abststellung:

1st speed 1/min: 1300

Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)

Shutoff
 electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 300

Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)

Shutoff
 electromagnet volt: -

Idle delivery:

1st speed 1/min: 300

Shutoff
 electromagnet Volt: 24

Del. quantity cm³/1000S.: 19.50...23.50
 (16.50...26.50)

Dispersion cm³/1000S.: 3.5
 (3.5)

2nd speed 1/min: 400

Shutoff
 electromagnet Volt: 24

Del. quantity cm³/1000S.: 0.00...3.00
 (0.00...3.00)

3rd speed 1/min: 350

Shutoff
 electromagnet Volt: 24

Del. quantity cm³/1000S.: 4.50...10.50
 (2.50...12.50)

Automatic starting fuel delivery:

1st speed 1/min: 180

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 90.00...120.00
1000S.: (90.00...120.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 30.00...60.00
1000S.: (30.00...60.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 75.00...105.00
1000S.: (75.00...105.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: -
MS	mm: 1.2...1.6
SVS max.	mm: 2.8
Ya	mm: 37.2...39.2
Yb	mm: 45.2...53.7

Remarks:

⋮

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : STE
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1200R265-3
Type number : 0 460 426 190
Customer Part-No. :

Customer-specific information
Customer : SNF

Engine : WD612.61

Power kW: 100
Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800
Setting value mm: 1.40...1.80

Supply-pump pressure

Speed 1/min: 800
Setting value bar: 5.50...6.10

Full-load del. w/out charge press.:

Speed 1/min: 1000
Del. quantity cm3/
1000S.: 87.00...88.00

Low-idle speed regulation

Speed 1/min: 300
Del. quantity cm3/
1000S.: 16.00...20.00
Del. quantity cm3/: 3.5
1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1275
Del. quantity cm3/
1000S.: 27.00...33.00

Start:

Speed 1/min: 100
Del. quantity cm3/: 80.00...130.00
mind 1000S.: 80.00

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 800
TD travel mm: 1.40...1.80
mm: (0.90...2.30)

4th speed 1/min: 600
TD travel mm: 0.20...1.00
mm: (0.00...1.30)

5th speed 1/min: 1200
TD travel mm: 3.10...3.90
mm: (2.80...4.20)

Supply-pump pressure characteristic:

1st speed 1/min: 1200
Supply-pump
pressure bar: 7.20...7.80

2nd speed 1/min: 800
Supply-pump
pressure bar: 5.50...6.10

3rd speed 1/min: 600
Supply-pump
pressure bar: 4.50...5.10

Overflow quantity at overflow valve:

1st speed 1/min: 550

Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)
2nd speed 1/min: 1200
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1380
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)
5th speed 1/min: 1275
Del. quantity cm³/: 27.00...33.00
1000s.: (24.00...36.00)
8th speed 1/min: 1230
Del. quantity cm³/: 55.00...95.00
1000s.: (55.00...95.00)
9th speed 1/min: 1200
Del. quantity cm³/: 85.00...88.00
1000s.: (84.00...89.00)
12th speed 1/min: 1000
Del. quantity cm³/: 87.00...86.00
1000s.: (85.00...90.00)
20th speed 1/min: 550
Del. quantity cm³/: 74.00...77.00
1000s.: (72.00...79.00)

Mech. shutoff:
Mech. Abst.ellung:

1st speed 1/min: 1200
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Idle delivery:

1st speed 1/min: 300
Del. quantity cm³/: 16.00...20.00
1000s.: (14.00...22.00)
Dispersion cm³/: 3.5
1000s.: (3.5)
2nd speed 1/min: 350
Del. quantity cm³/: 4.00...10.00
1000s.: (3.00...11.00)
3rd speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 150
Del. quantity cm³/: 85.00...135.00
1000s.: (85.00...135.00)

2nd speed 1/min: 300
Del. quantity cm³/: 55.00...75.00
1000s.: (55.00...75.00)

4th speed 1/min: 100

Del. quantity cm³/: 80.00...130.00
1000s.: (80.00...130.00)

Shutoff electromagnet:

Cut-in
min voltage : -
Rated voltage : -

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.6...6.0
MS1	mm: 1.6...1.9
SVS max.	mm: 5.7
Ya	mm: 37.2...38.2
Yb	mm: 52.8...61.2

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS
Edition : 02.94
replaces : 09.12.91
Calibrating oil : ISO-4113

Injection pump : VE6/12F1000R369-2
Type number : U 460 426 196
Customer Part-No. :

Customer-specific information
Customer : CASE

Engine : 6T 590

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): ±0.02(0.04)

Start of delivery block
Piston stroke mm: 1.5
mm: ±0.02(0.06)

Outlet : 0

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 750
Setting value mm: 3.00...3.40
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750
Setting value bar: 3.30...3.90
Shutoff
electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 850
Del. quantity cm3/
1000S.: 66.50...67.50
Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
1000S.: 6.00...12.00
Shutoff
electromagnet Volt: 24
Del. quantity cm3/
1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1040
Del. quantity cm3/
1000S.: 53.00...59.00
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 60.00
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
TD travel mm: 4.60...5.40
mm: (4.30...5.70)
Shutoff
electromagnet Volt: 24
3rd speed 1/min: 750

TD travel mm: 3.00...3.40
mm: (2.50...3.90)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 500
TD travel mm: 0.90...1.70
mm: (0.60...2.00)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2.30...2.90

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 750
Supply-pump
pressure bar: 3.30...3.90

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
Supply-pump
pressure bar: 4.50...5.10
Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 24
Overflow : 41.70...86.20
quantity cm³/10s: (26.70...101.20)

2nd speed 1/min: 1000
Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1120
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 1060
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 25.00...55.00
1000S.: (25.00...55.00)

5th speed 1/min: 1040
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 53.00...59.00
1000S.: (50.00...62.00)

9th speed 1/min: 1000

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 63.50...66.50
1000S.: (62.00...68.00)

12th speed 1/min: 850
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 66.50...67.50
1000S.: (64.00...70.00)

15th speed 1/min: 750
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 63.00...66.00
1000S.: (61.00...68.00)

20th speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 40.50...48.50
1000S.: (38.50...50.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 6.00...12.00
1000S.: (4.00...14.00)

Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...4.00
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 70.00...130.00
1000S.: (70.00...130.00)

2nd speed 1/min: 240
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 5.00...35.00
1000S.: (5.00...35.00)

4th speed 1/min: 100

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...120.00
1000S.: (60.00...120.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.0...5.4
MS	mm: 0.3...1.2
SVS max.	mm: 1.2
XK	mm: 18.8...20.8
XL	mm: 6.8...10.2
Ya	mm: 34.8...38.8
Yb	mm: 38.2...43.4

Remarks:

⋮

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : NIS
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F120GR325-2
Type number : 0 460 426 206
Customer Part-No. :

Customer-specific information
Customer : NISSAN-MISA

Engine : HX 150 "DI"

Power KW: 119.5
Speed 1/min: 1200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1000

Setting value mm: 1.60...2.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 7.20...7.80
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 92.00...93.00
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 82.50...83.50
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 13.00...17.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1300
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 44.00...50.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 100.0
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1200
Charge press hPa: 1000
TD travel mm: 2.30...3.10
mm: (2.00...3.40)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 1.60...2.00
mm: (1.10...2.50)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 0.50...1.30
mm: (0.20...1.60)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1200
Charge press. hPa: 1000
Supply-pump pressure bar: 7.80...8.40
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump pressure bar: 7.20...7.80
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 4.30...4.90
Shutoff

electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 75.00...119.50
(60.00...134.50)

2nd speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 97.30...180.70
(82.30...195.70)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
Charge-air pressure-setting point hPa: 500
LDA-stroke mm: 5.2
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 85.00...86.00
(81.50...89.50)

2nd speed 1/min: 1400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 0.00...3.00
(0.00...3.00)

3rd speed 1/min: 1330
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 0.00...10.00
-

5th speed 1/min: 1300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 44.00...50.00
-

8th speed 1/min: 1280
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 63.00...83.00
-

9th speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 85.00...88.00
(83.00...90.00)

12th speed 1/min: 800
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 92.00...93.00
(89.50...95.50)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 82.50...83.50
(80.00...86.00)

20th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000s.: 100.00...106.00
-

Delivery-quant. and breakaway char.:

Inj.-qty.values,temp.-compensated
temperatura

Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 77.00...83.00
1000S.: (80.00...80.00)

Mech. shutoff:

Mech. Abstellung:

1st speed 1/min: 1200
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: -

Shutoff

electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff

electromagnet volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.00...17.00
1000S.: (10.00...20.00)

Dispersion cm³/: 5.0
1000S.: (5.0)

2nd speed 1/min: 480

Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 120.00...170.00
1000S.: -

2nd speed 1/min: 300

Shutoff

electromagnet Volt: 12
Del. quantity cm³/: 60.00...90.00
1000S.: -

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 105.00...155.00
1000S.: -

Shutoff electromagnet:

Cut-in

min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.7...3.9
KF	mm: KOT
MS	mm: 1.4...1.6
SVS max.	mm: 4.4
LDA stroke	mm: 5.2
Ya	mm: 37.9...39.9
Yb	mm: 52.2...60.6

Remarks:

:
Operate control lever after each
manifold-pressure compensator pressure
change.

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Values without check tolerance do
not apply when checking pump.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : NIS
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1200R325-3
Type number : 0 460 426 207
Customer Part-No. :

Customer-specific information
Customer : NISSAN-MISA

Engine : HX 130 "DI"

Power KW: 103
Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
Charge press. hPa: 1000

K01

Setting value mm: 1.80...2.20
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 900
Charge press hPa: 1000
Setting value bar: 6.30...6.90
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 77.50...78.50

Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 73.00...74.00

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1300
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 48.00...54.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 100.0

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1200
Charge press hPa: 1000
TD travel mm: 3.70...4.50
mm: (3.20...5.00)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 900
Charge press hPa: 1000
TD travel mm: 1.80...2.20
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 700
Charge press hPa: 1000
TD travel mm: 0.40...1.20
mm: (0.10...1.50)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1200
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.70...8.30
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 900
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.30...6.90
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.40...5.00
Shutoff

electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 75.00...119.50
quantity cm³/10s: (60.00...134.50)

2nd speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 97.30...180.70
quantity cm³/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
Charge-air pressure-setting
point hPa: 375
LDA-stroke mm: 5.2
Shutoff
electromagnet Volt: 12
Del. quantity cm³/:
1000S.: (74.00...75.00)
1000S.: (70.50...78.50)

2nd speed 1/min: 1400
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/:
1000S.: (0.00...3.00)
1000S.: (0.00...3.00)

3rd speed 1/min: 1330
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/:
1000S.: (0.00...10.00)
1000S.: (0.00...10.00)

5th speed 1/min: 1300
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/:
1000S.: (48.00...54.00)
1000S.: -

8th speed 1/min: 1280
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/:
1000S.: (55.00...75.00)
1000S.: -

9th speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/:
1000S.: (67.50...70.50)
1000S.: (65.50...72.50)

12th speed 1/min: 800
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/:
1000S.: (77.50...78.50)
1000S.: (75.00...81.00)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/:
1000S.: (73.00...74.00)
1000S.: (70.50...76.50)

20th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/:
1000S.: (77.00...83.00)
1000S.: -

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1200
 Charge press. hPa: 1000
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: 12

 Electr. shutoff:

 1st speed 1/min: 400
 Charge press. hPa: -
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -

 Idle delivery:

 1st speed 1/min: 400
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 13.00...17.00
 1000S.: (10.00...20.00)
 Dispersion cm³/: 5.0
 1000S.: (5.0)
 2nd speed 1/min: 480
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

 Automatic starting fuel delivery:

 1st speed 1/min: 200
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 115.00...165.00
 1000S.: (115.00...165.00)

 2nd speed 1/min: 300
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 55.00...85.00
 1000S.: (55.00...85.00)

 4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 100.00...150.00
 1000S.: (100.00...150.00)

 Shutoff electromagnet:

 Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

 Mounting and assembly dimensions:

Designation
 K mm: 3.7...3.9
 KF mm: KOT
 MS mm: 1.3...1.7
 LDA stroke mm: 5.2
 Ya mm: 37.9...39.9
 Yb mm: 52.1...60.5

Remarks:

:
 :
 Operate control lever after each
 manifold-pressure compensator pressure
 change.

Ya = Distance between VE flange and
 speed-control lever in idle
 position
 Measurement point = edge of control
 lever on drive end

Yb = Distance between VE flange and
 speed-control lever in rated speed
 position
 Measurement point = edge of control
 lever on distributor-head end

Permissible port/port scatter with
 stop test, electrical = max. 5.0
 ccm/1000 S.

Permissible port/port scatter with
 stop test, mechanical = max. 5.0
 ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : NIS
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1200R491
Type number : 0 460 426 208
Customer Part-No. :

Customer-specific information
Customer : NISSAN-MISA

Engine : HX 110 "DI"

Power KW: 87
Speed 1/min: 1200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 109

Opening
Pressure bar: 207.00...210.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
Setting value mm: 2.10...2.50

K04

Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 900
Setting value bar: 6.30...6.90
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 800
Del. quantity cm3/
1000S.: 63.50...64.50

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 5.0
1000S.: (5.0)

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 5.0
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1270
Del. quantity cm3/
1000S.: 29.00...35.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 90.00...140.00
mind 1000S.: 90.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1200
TD travel mm: 3.70...4.50
mm: (3.40...4.80)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 900
TD travel mm: 2.10...2.50
mm: (1.60...3.00)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 700
TD travel mm: 0.40...1.20
mm: (0.10...1.50)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1200
Supply-pump pressure bar: 7.70...8.30
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 900
Supply-pump pressure bar: 6.30...6.90
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 500
Supply-pump pressure bar: 4.40...5.00
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 75.00...119.50
(60.00...134.50)
2nd speed 1/min: 1200
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 97.30...180.70
(82.30...195.70)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 1350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
5th speed 1/min: 1270
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 29.00...35.00
1000S.: (25.00...39.00)
9th speed 1/min: 1200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 57.50...60.50
1000S.: (56.00...62.00)
12th speed 1/min: 800
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 63.50...64.50
1000S.: (61.00...67.00)
20th speed 1/min: 500

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 61.50...64.50
1000S.: (60.00...66.00)

Mech. shutoff:
Mech. Abst.ung:

1st speed 1/min: 1200
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.00...17.00
1000S.: (10.00...20.00)

Dispersion cm³/: 5.0
1000S.: (5.0)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 105.00...155.00
1000S.: -

2nd speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...75.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 90.00...140.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.7...3.9
KF mm: KOT
MS mm: 1.3...1.7
SVS max. mm: 5.5
LDA stroke mm: 5.2
Ya mm: 37.9...39.9
Yb mm: 48.8...57.2

Remarks:

:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN
Edition : 02.94
replaces : 15.02.93
Calibrating oil : ISO-4113
Injection pump : VE6/12F1200R496
Type number : 0 460 426 209
Customer Part-No. :

Customer-specific information
Customer : MAN

Engine : D 0826 LF 07 "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 110

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.2
(from BDC): +-0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 850
Charge press. hPa: 1000
Setting value mm: 2.00...2.40

Supply-pump pressure

K07

Speed 1/min: 850
Charge press hPa: 1000
Setting value bar: 7.30...7.90

Full-load del. with charge press.:

Speed 1/min: 1000
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 91.50...92.50
Dispersion cm3/
1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 59.50...60.50

Low-idle speed regulation

Speed 1/min: 250
Del. quantity cm3/
1000S.: 16.50...23.50
Del. quantity cm3/
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1280
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 62.00...68.00

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 60.00...100.00

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 950
Charge press hPa: 1000
TD travel mm: 2.90...3.70
mm: (2.60...4.00)

3rd speed 1/min: 850
Charge press hPa: 1000
TD travel mm: 2.00...2.40
mm: (1.50...2.90)

4th speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 0.60...1.40
mm: (0.30...1.70)

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump pressure bar: 5.50...6.10
 2nd speed 1/min: 850
 Charge press. hPa: 1000
 Supply-pump pressure bar: 7.30...7.90
 3rd speed 1/min: 1200
 Charge press. hPa: 1000
 Supply-pump pressure bar: 9.00...9.60

Overflow quantity at overflow valve:

1st speed 1/min: 500
 Charge press. hPa: -
 Overflow quantity cm³/10s: 41.70...86.10 (26.70...101.10)
 2nd speed 1/min: 1200
 Charge press. hPa: 1000
 Overflow quantity cm³/10s: 55.60...139.00 (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 500
 Charge-air pressure-setting point hPa: 450
 LDA-stroke mm: 7.5
 Del. quantity cm³/1000S.: 92.50...93.50 (90.50...95.50)
 2nd speed 1/min: 1450
 Charge press. hPa: 1000
 Del. quantity cm³/1000S.: 0.00...3.00 (0.00...3.00)
 3rd speed 1/min: 1350
 Charge press. hPa: 1000
 Del. quantity cm³/1000S.: 0.00...15.00 (0.00...15.00)
 4th speed 1/min: 1300
 Charge press. hPa: 1000
 Del. quantity cm³/1000S.: 30.00...66.00 (30.00...66.00)
 5th speed 1/min: 1280
 Charge press. hPa: 1000
 Del. quantity cm³/1000S.: 62.00...68.00 (60.50...69.50)
 9th speed 1/min: 1200
 Charge press. hPa: 1000
 Del. quantity cm³/1000S.: 86.90...91.90 (85.40...93.40)
 12th speed 1/min: 1000
 Charge press. hPa: 1000
 Del. quantity cm³/1000S.: 91.50...92.50 (89.50...94.50)
 15th speed 1/min: 800
 Charge press. hPa: 1000

Del. quantity cm³/1000S.: 92.10...97.10 (90.60...98.60)
 17th speed 1/min: 600
 Charge press. hPa: 1000
 Del. quantity cm³/1000H.: 98.50...103.50 (97.00...105.00)
 18th speed 1/min: 500
 Charge press. hPa: -
 Del. quantity cm³/1000S.: 59.50...60.50 (57.50...62.50)
 20th speed 1/min: 500
 Charge press. hPa: 1000
 Del. quantity cm³/1000S.: 102.10...111.10 (100.60...112.60)

Mech. shutoff:
 Mech. Abstellung:

1st speed 1/min: 1200
 Charge press. hPa: 1000
 Del. quantity cm³/1000S.: 0.00...3.00 (0.00...3.00)

Idle delivery:

1st speed 1/min: 250
 Del. quantity cm³/1000S.: 16.50...23.50 (14.50...25.50)
 Dispersion cm³/1000S.: 6.0 (6.5)
 2nd speed 1/min: 400
 Del. quantity cm³/1000S.: 0.00...3.00 (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 330
 Del. quantity cm³/1000S.: 70.00...100.00 (70.00...100.00)
 2nd speed 1/min: 430
 Del. quantity cm³/1000S.: 40.00...70.00 (40.00...70.00)
 4th speed 1/min: 100
 Del. quantity cm³/1000S.: 60.00...100.00 (60.00...100.00)

Mounting and assembly dimensions:

Designation
 K mm: -
 KF mm: KOT
 MS mm: 0.9...1.3
 SVS max. mm: 1.1
 LDA stroke mm: 7.5
 Ya mm: 37.4...40.4
 Yb mm: 44.2...49.4

Remarks:

⋮
Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Pump with slave plunger

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM
 Edition : 02.94
 replaces : -
 Calibrating oil : ISO-4113
 Injection pump : VE6/12F1250R498
 Type number : 0 460 426 211
 Customer Part-No. : 3 282 306

Customer-specific information
 Customer : CDC

Engine : 6 BT- 5.9A

Power KW: 132
 Speed 1/min: 2500

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
 return temp. °C
 with thermometer : 40.00...48.00
 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
 assembly : 1 688 901 109

Opening
 Pressure bar: 207.00...210.00

Perforated-plate
 diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
 x Wall thickness : 2.00
 x Length mm: 840

Start of delivery
 Prestroke mm: -
 (from BDC): -

Start of delivery block
 Piston stroke mm: 1.4
 mm: ±0.02(0.06)

Outlet : 0

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
 Charge press. hPa: 1000
 Setting value mm: 1.50...1.90
 Shutoff
 electromagnet volt: 24

Supply-pump pressure

Speed 1/min: 1000
 Charge press hPa: 1000
 Setting value bar: 6.30...6.90
 Shutoff
 electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 850
 Charge press. hPa: 1000
 Del. quantity cm³/
 1000S.: 81.50...82.50
 Shutoff
 electromagnet Volt: 24
 Dispersion cm³/: 5.0
 1000S.: -

Full-load del. w/out charge press.:

Speed 1/min: 500
 Del. quantity cm³/
 1000S.: 65.50...66.50
 Shutoff
 electromagnet volt: 24

Low-idle speed regulation

Speed 1/min: 350
 Del. quantity cm³/
 1000S.: 6.00...10.00
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 5.5
 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1380
 Charge press hPa: 1000
 Del. quantity cm³/
 1000S.: 63.50...69.50
 Shutoff
 electromagnet Volt: 24

Start:

Speed 1/min: 100
 Del. quantity cm³/: 75.00...105.00
 mind 1000S.: 75.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 1250
Charge press. hPa: 1000
TD travel mm: 2.30...3.10
mm: (2.00...3.40)

Shutoff
electromagnet Volt: 24
5th speed 1/min: 1000
Charge press. hPa: 1000
TD travel mm: 1.50...1.90
mm: (1.00...2.40)

Shutoff
electromagnet Volt: 24
7. Rotacao 1/min: 850
Charge press. hPa: 1000
TD travel mm: 0.30...1.10
mm: (0.00...1.40)

Shutoff
electromagnet Volt: 24
8th speed 1/min: 450
Charge press. hPa: -
TD travel mm: 2.00...3.00
mm: (1.80...3.20)

KSB/AFB
valve Volt: 24
Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump
pressure bar: 3.90...4.50

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 850
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.90...6.50

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 6.30...6.90

Shutoff
electromagnet Volt: 24
4th speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.30...7.90

Shutoff
electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 1250
Charge press. hPa: 1100
Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600
Charge-air pressure-setting
point hPa: 450
LDA-stroke mm: 6.5
Shutoff
electromagnet Volt: 24
Del. quantity cm³/ : 72.50...73.50
1000S.: (69.00...77.00)

2nd speed 1/min: 1500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/ : 0.00...3.00
1000S.: -

3rd speed 1/min: 1465
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/ : 15.00...35.00
1000S.: -

4th speed 1/min: 1380
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/ : 63.50...69.50
1000S.: (60.50...72.50)

5th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/ : 80.00...83.00
1000S.: (78.50...84.50)

6th speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/ : 81.50...84.50
1000S.: (79.50...86.50)

7th speed 1/min: 850

Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 81.50...82.50
1000S.: (79.00...85.00)
8th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 65.50...66.50
1000S.: (62.00...70.00)

Mech. shutoff:
Mech. Abstimmung:

1st speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 6.00...10.00
1000S.: (3.00...13.00)
Dispersion cm³/: 5.5
1000S.: (7.0)

2nd speed 1/min: 410
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 240
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...90.00
1000S.: (60.00...90.00)

2nd speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 80.00...120.00
1000S.: (80.00...120.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 75.00...105.00
1000S.: (75.00...105.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: KOT
MS1 mm: 1.2...1.5
SVS max. mm: 3.7
LDA stroke mm: 6.5
Ya mm: 34.8...38.8
Yb mm: 48.2...53.8

Remarks:

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Operate control lever after each manifold-pressure compensator pressure change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1350R506
Type number : 0 460 426 215
Customer Part-No. :

Customer-specific information
Customer : IVECO FIAT

Engine : 8060.45.4400 "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 3.10...3.30
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 7.90...8.50
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 74.50...75.50
Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 48.50...49.50
Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 13.00...17.00
Shutoff
electromagnet Volt: 24
Del. quantity cm3/
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1525
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 27.00...33.00
Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 60.00...110.0
Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1350
Charge press hPa: 1000
TD travel mm: 4.60...5.20
mm: (4.20...5.60)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.70...2.30
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 3.10...3.30
mm: (2.50...3.90)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 1350
Charge press. hPa: 1000
Supply-pump
pressure bar: 9.30...9.90

Shutoff
electromagnet Volt: 24
2nd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.90...8.50

Shutoff
electromagnet Volt: 24
4th speed 1/min: 600
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.00...5.60

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow : 90.20...131.90

quantity cm³/10s: (75.20...156.90)
2nd speed 1/min: 1350
Charge press. hPa: 1000
Shutoff

electromagnet Volt: 24
Overflow : 97.30...180.70
quantity cm³/10s: (82.30...195.70)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 500
Charge-air pressure-setting
point hPa: 350
LDA-stroke mm: 6.1

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 62.50...63.50
1000S.: (59.00...67.00)

2nd speed 1/min: 1625
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

4th speed 1/min: 1475
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 45.00...53.00
1000S.: (43.00...55.00)

5th speed 1/min: 1525
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 27.00...33.00
1000S.: (24.00...36.00)

9th speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 67.50...70.50
1000S.: (65.50...72.50)

12th speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 70.00...74.00
1000S.: (68.50...75.50)

13th speed 1/min: 700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 74.50...75.50
1000S.: (71.50...78.50)

14th speed 1/min: 600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 77.50...81.50
1000S.: (76.00...83.00)

15th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 48.50...49.50
1000S.: (45.50...52.50)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1350
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 13.00...17.00
1000S.: (10.00...20.00)

Dispersion cm³/: 4.0
1000S.: (5.0)

2nd speed 1/min: 425
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 375
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 4.00...10.0
1000S.: (2.00...12.0)

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 40.00...60.00
1000S.: -

2nd speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3.5...3.7
KF mm: KOT

K15

MS1 mm: 1.1...1.4
LDA stroke mm: 6.1
Ya mm: 37.9...39.9
Yb mm: 41.2...46.6

Remarks:

:
:
Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEN
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1950L527
Type number : 0 460 426 218
Customer Part-No. :

Customer-specific information
Customer : PENTA

Engine : KAD / KAMD 42 CE

Power KW: 155
Speed 1/min: 1950

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 110

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): ±0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1500

Setting value mm: 3.30...3.70

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1500
Setting value bar: 7.70...8.30

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1500
Del. quantity cm3/
1000S.: 81.50...82.50
Dispersion cm3/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm3/
1000S.: 54.00...55.00

Low-idle speed regulation

Speed 1/min: 325
Del. quantity cm3/
1000S.: 21.00...25.00
Del. quantity cm3/: 14.0
1000S.: (14)

Full-load speed regulation

Speed 1/min: 2050
Charge press hPa: 1500
Del. quantity cm3/
1000S.: 57.00...63.00

Start:

Speed 1/min: 100
Del. quantity cm3/: 20.00...70.00
mind 1000S.: 20.00

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1800
Charge press hPa: 1500
TD travel mm: 4.10...5.10
mm: (3.70...5.50)

3rd speed 1/min: 1500
Charge press hPa: 1500
TD travel mm: 3.30...3.70
mm: (2.80...4.20)

4th speed 1/min: 1100
Charge press hPa: 1500

TD travel mm: 0.80...1.80
mm: (0.40...2.20)
5th speed 1/min: 1950
Charge press. hPa: 1500
TD travel mm: 4.50...5.50
mm: (4.10...5.90)

Supply-pump pressure characteristic:

1st speed 1/min: 1950
Charge press. hPa: 1500
Supply-pump pressure bar: 9.20...9.80
2nd speed 1/min: 1500
Charge press. hPa: 1500
Supply-pump pressure bar: 7.70...8.30
4th speed 1/min: 800
Charge press. hPa: 1500
Supply-pump pressure bar: 5.20...5.80

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1500
Overflow quantity cm³/10s: 69.50...152.90
(54.50...167.90)
2nd speed 1/min: 1950
Charge press. hPa: 1500
Overflow quantity cm³/10s: 97.30...180.70
(102.30...195.70)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
Charge-air pressure-setting point hPa: 750
LDA-stroke mm: 7.1
Del. quantity cm³/1000S.: 82.00...83.00
(78.50...86.50)
2nd speed 1/min: 2300
Charge press. hPa: 1500
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)
4th speed 1/min: 2180
Charge press. hPa: 1500
Del. quantity cm³/1000S.: 0.00...25.00
-
5th speed 1/min: 2050
Charge press. hPa: 1500
Del. quantity cm³/1000S.: 57.00...63.00
(52.00...68.00)
9th speed 1/min: 1950
Charge press. hPa: 1500
Del. quantity cm³/1000S.: 74.50...78.50
(73.00...80.00)
12th speed 1/min: 1500
Charge press. hPa: 1500

Del. quantity cm³/1000S.: 81.50...82.50
(79.00...85.00)
15th speed 1/min: 1200
Charge press. hPa: 1500
Del. quantity cm³/1000S.: 83.50...88.50
(82.50...89.50)
18th speed 1/min: 600
Charge press. hPa: -
Del. quantity cm³/1000S.: 54.00...55.00
(51.50...57.50)
20th speed 1/min: 800
Charge press. hPa: 1500
Del. quantity cm³/1000S.: 92.50...99.50
(91.00...101.00)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1950
Charge press. hPa: 1500
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff electromagnet volt: -

Electr. shutoff:

1st speed 1/min: 325
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff electromagnet volt: 12

Idle delivery:

1st speed 1/min: 325
Del. quantity cm³/1000S.: 21.00...25.00
(18.00...28.00)
Dispersion cm³/1000S.: 14
(14)
2nd speed 1/min: 580
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 275
Del. quantity cm³/1000S.: 50.00...100.00
(50.00...100.00)
2nd speed 1/min: 400
Del. quantity cm³/1000S.: 30.00...60.00
(30.00...60.00)
4th speed 1/min: 100
Del. quantity cm³/1000S.: 20.00...70.00
(20.00...70.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: -
MS mm: 0.8...1.2
SVS max. mm: 1.6
LDA stroke mm: 7.1
Ya mm: 37.2...39.2
Yb mm: 49.1...56.9

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Pushing electromagnet.

Always pay attention to test instructions for DISTRIBUTOR-TYPE INJECTION PUMPS FOR DI ENGINES!

Information additionally required for testing fuel-injection pump:

TEST PREREQUISITES
Calibrating-oil return temperature with thermometer, °C :55

Calibrating-oil inlet temperature, °C :42...47

Dwell speed, 1/min :1200
Feedback voltage, mV :-

SETTINGS/TEST SPECIFICATIONS FOR FUEL-INJECTION PUMP,

delivery rates

Test speed, 1/min :<500
Temperature stabilisation speed 1/min :2000
Output temperature, °C :65
Measurement temperature, °C:61

Test speed, 1/min :500...799
Temperature stabilisation speed 1/min :2000
Output temperature, °C :61
Measurement temperature, °C:57

Test speed, 1/min :800...1199
Temperature stabilisation speed 1/min :2000
Output temperature, °C :60
Measurement temperature, °C:56

Test speed, 1/min :1200...1700
Temperature stabilisation speed 1/min :100
Output temperature, °C :53
Measurement temperature, °C:55

Test speed, 1/min :1700
Temperature stabilisation speed 1/min :100
Output temperature, °C :51
Measurement temperature, °C:53

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEN
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1950L528
Type number : 0 460 426 219
Customer Part-No. :

Customer-specific information
Customer : PENTA

Engine : KAD

Power KW: 169
Speed 1/min: 1950

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 110

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: 0.3
(from BDC): -0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1500

Setting value mm: 3.20...3.60

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1500
Setting value bar: 8.30...8.90

Full-load del. with charge press.:

Speed 1/min: 1800
Charge press. hPa: 1500
Del. quantity cm³/
1000S.: 92.00...93.00
Dispersion cm³/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del. quantity cm³/
1000S.: 48.00...49.00

Low-idle speed regulation

Speed 1/min: 325
Del. quantity cm³/
1000S.: 7.00...11.00
Del. quantity cm³/: 5.00
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 2180
Charge press hPa: 1500
Del. quantity cm³/
1000S.: 9.00...15.00

Start:

Speed 1/min: 100
Del. quantity cm³/: 40.00...90.00
mind 1000S.: 65.00

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1900
Charge press hPa: 1500
TD travel mm: 4.40...5.40
mm: (4.00...5.80)
3rd speed 1/min: 1500
Charge press hPa: 1500
TD travel mm: 3.20...3.60
mm: (2.70...4.10)
4th speed 1/min: 1100
Charge press hPa: 1500

TD travel mm: 0.50...1.50
mm: (0.10...1.90)

Supply-pump pressure characteristic:

1st speed 1/min: 1900
Charge press. hPa: 1500
Supply-pump pressure bar: 9.40...10.00
2nd speed 1/min: 1500
Charge press. hPa: 1500
Supply-pump pressure bar: 8.30...8.90
3rd speed 1/min: 1100
Charge press. hPa: 1500
Supply-pump pressure bar: 7.00...7.60
4th speed 1/min: 600
Charge press. hPa: 1500
Supply-pump pressure bar: 5.20...5.80

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1500
Overflow quantity cm³/10s: 88.80...133.30
(73.80...148.30)
2nd speed 1/min: 1950
Charge press. hPa: 1500
Overflow quantity cm³/10s: 97.30...180.70
(82.30...195.70)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
Charge-air pressure-setting point hPa: 750
LDA-stroke mm: 7.5
Del. quantity cm³/1000S.: 65.00...66.00
(61.50...69.50)
2nd speed 1/min: 2300
Charge press. hPa: 1500
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)
4th speed 1/min: 2180
Charge press. hPa: 1500
Del. quantity cm³/1000S.: 9.00...15.00
(4.00...20.00)
5th speed 1/min: 1950
Charge press. hPa: 1500
Del. quantity cm³/1000S.: 88.50...92.50
(87.00...94.00)
6th speed 1/min: 1800
Charge press. hPa: 1500
Del. quantity cm³/1000S.: 92.00...93.00
(89.50...95.50)
8th speed 1/min: 1500
Charge press. hPa: 1500

Del. quantity cm³/1000S.: 91.00...96.00
(90.00...97.00)
9th speed 1/min: 1250
Charge press. hPa: 1500
Del. quantity cm³/1000S.: 86.50...91.50
(85.50...92.50)
11th speed 1/min: 600
Charge press. hPa: -
Del. quantity cm³/1000S.: 48.00...49.00
(45.50...51.50)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1950
Charge press. hPa: 1500
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff electromagnet volt: -

Electr. shutoff:

1st speed 1/min: 325
Charge press. hPa: -
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Shutoff electromagnet volt: 12

Idle delivery:

1st speed 1/min: 325
Del. quantity cm³/1000S.: 7.00...11.00
(4.00...14.00)
Dispersion cm³/1000S.: 5.0
(5.0)
2nd speed 1/min: 450
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 275
Del. quantity cm³/1000S.: 50.00...100.00
(50.00...100.00)

2nd speed 1/min: 400
Del. quantity cm³/1000S.: 25.00...55.00
(25.00...55.00)

4th speed 1/min: 100
Del. quantity cm³/1000S.: 40.00...90.00
(40.00...90.00)

Shutoff electromagnet:

Cut-in min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: KOT
MS1	mm: 1.6...1.9
SVS max.	mm: 1.9
LDA stroke	mm: 751
Ya	mm: 37.2...39.2
Yb	mm: 53.6...61.4

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Pushing electromagnet.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1150R534
Type number : 0 460 426 220
Customer Part-No. :

Customer-specific information
Customer : MWM

Engine : TD 226-86

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 110

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900
Setting value mm: 2.10...2.30
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 900
Setting value bar: 6.80...7.40
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 900
Del. quantity cm3/
1000S.: 68.00...69.00
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 325
Del. quantity cm3/
1000S.: 10.00...16.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 37.00...43.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 79.00...82.00 v
mind 1000S.: 72.00
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000
TD travel mm: 2.70...3.50
mm: (2.40...3.80)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 900
TD travel mm: 2.10...2.30
mm: (1.70...2.70)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 800

TD travel mm: 0.80...1.60
mm: (0.50...1.90)

Shutoff
electromagnet volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1150
Supply-pump
pressure bar: 7.70...8.30

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 900
Supply-pump
pressure bar: 6.80...7.40

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 500
Supply-pump
pressure bar: 5.50...6.10

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow : 40.30...84.70
quantity cm³/10s: (25.30...98.70)

2nd speed 1/min: 1150
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 1350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: -

2nd speed 1/min: 1300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 1260
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...40.00
1000S.: -

6th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...43.00
1000S.: (31.50...48.50)

8th speed 1/min: 1150

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 63.00...66.00
1000S.: (61.50...67.50)

9th speed 1/min: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 66.00...68.00
1000S.: (64.50...70.50)

12th speed 1/min: 900
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 68.00...69.00
1000S.: (66.00...71.00)

18th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 55.50...61.50
1000S.: (54.50...62.50)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1150
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 350
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...16.00
1000S.: (6.50...19.50)

Dispersion cm³/: 3.5
1000S.: (6.5)

2nd speed 1/min: 375
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...100.00
1000S.: -

2nd speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 100.00...180.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 79.00...81.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.5...3.7
KF	mm: KOT
MS	mm: 0.9...1.3
SVS max.	mm: 1.4
Ya	mm: 41.4...45.4
Yb	mm: 40.6...46.4

Remarks:

:
Starting delivery check
V = Speed-control lever in full-load
position

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1350R555
Type number : 0 460 426 227
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT

Engine : 8060.45.4485 "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.90...2.30
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 7.00...7.60
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 75.50...76.50

Shutoff
electromagnet Volt: 24
Dispersion cm3/: 3.5
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 47.00...48.00

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 14.00...18.00

Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 4.0
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1475
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 44.00...50.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.00...110.00
mind 1000S.: 60.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1200
 Charge press hPa: 1000
 TD travel mm: 3.80...4.60
 mm: (3.50...4.90)
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 1.90...2.30
 mm: (1.40...2.80)
 Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 900
 Charge press hPa: 1000
 TD travel mm: 0.50...1.30
 mm: (0.20...1.60)
 Shutoff
 electromagnet Volt: 24

 Supply-pump pressure characteristic:

 1st speed 1/min: 600
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 4.70...5.30
 Shutoff
 electromagnet Volt: 24
 2nd speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 7.00...7.60
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1350
 Charge press. hPa: 1000
 Supply-pump
 pressure bar: 8.80...9.40
 Shutoff
 electromagnet Volt: 24

 Overflow quantity at overflow valve:

 1st speed 1/min: 600
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Overflow : 69.50...152.90
 quantity cm³/10s: (54.50...167.90)
 2nd speed 1/min: 1350
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Overflow : 97.30...180.70
 quantity cm³/10s: (82.30...195.70)

 Delivery-quant. and breakaway char.:

 1nd speed 1/min: 600

Charge-air pressure-setting
 point hPa: 450
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 66.00...67.00
 1000s.: (62.50...70.50)
 2nd speed 1/min: 1550
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 0.00...3.00
 1000s.: (0.00...3.00)
 5th speed 1/min: 1450
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 59.00...71.00
 1000s.: (57.00...73.00)
 8th speed 1/min: 1475
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 44.00...50.00
 1000s.: (41.00...53.00)
 9th speed 1/min: 1350
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 68.50...71.50
 1000s.: (66.50...73.50)
 10th speed 1/min: 1200
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 69.50...73.50
 1000s.: (68.00...75.00)
 12th speed 1/min: 700
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 75.50...76.50
 1000s.: (72.50...79.50)
 13th speed 1/min: 600
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 44.00...48.00
 1000s.: (42.00...50.00)
 14th speed 1/min: 600
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 76.50...80.50
 1000s.: (75.00...82.00)
 15th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/: 47.00...48.00
 1000s.: (44.00...51.00)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1350
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 14.00...18.00
1000S.: (11.00...21.00)

Dispersion cm³/: 4.0
1000S.: (5.0)

2nd speed 1/min: 400
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 40.00...60.00
1000S.: (40.00...60.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

K27

Mounting and assembly dimensions:

Designation

K	mm: 3.5...3.7
KF	mm: KOT
MS1	mm: 1.2...1.5
Ya	mm: 37.9...39.9
Yb	mm: 39.3...44.7

Remarks:

:
Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R556
Type number : 0 460 426 228
Customer Part-No. :

Customer-specific information
Customer : PERKINS

Engine : Q20 Phaser 210Ti

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1500
Setting value mm: 1.50...1.70
Shutoff
electromagnet Volt: 24

K28

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1500
Setting value bar: 7.20...7.80
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 900
Charge press. hPa: 1500
Del. quantity cm³/
1000S.: 93.50...94.50

Shutoff
electromagnet Volt: 24
Dispersion cm³/: 5.0
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 56.00...57.00

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 280
Del. quantity cm³/
1000S.: 9.00...13.00

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 6.5
1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1400
Charge press hPa: 1500
Del. quantity cm³/
1000S.: 42.00...48.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 130.00...190.00
mind 1000S.: 130.0

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100
Charge press hPa: 1500
TD travel mm: 2.10...2.70
mm: (1.70...3.10)

Shutoff
electromagnet Volt: 24
3rd speed 1/min: 1000
Charge press hPa: 1500
TD travel mm: 1.50...1.70
mm: (1.00...2.20)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 900
Charge press hPa: 1500
TD travel mm: 0.40...1.00
mm: (0.00...1.40)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 1250
Charge press. hPa: 1500
Supply-pump
pressure bar: 8.20...8.80
Shutoff

electromagnet Volt: 24
2nd speed 1/min: 1000
Charge press. hPa: 1500
Supply-pump
pressure bar: 7.20...7.80
Shutoff

electromagnet Volt: 24
3rd speed 1/min: 700
Charge press. hPa: 1500
Supply-pump
pressure bar: 6.10...6.70
Shutoff

electromagnet Volt: 24

Overlow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Overflow : 41.70...86.10
quantity cm³/10s: (26.70...101.10)

2nd speed 1/min: 1250
Charge press. hPa: 1500
Shutoff
electromagnet Volt: 24
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700

Charge-air pressure-setting
point hPa: 700

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 81.00...82.00
1000S.: (78.00...85.00)

2nd speed 1/min: 1480
Charge press. hPa: 1500
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 1400
Charge press. hPa: 1500
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 42.00...48.00
1000S.: (39.00...51.00)

8th speed 1/min: 1350
Charge press. hPa: 1500
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 65.00...95.00
1000S.: (65.00...95.00)

9th speed 1/min: 1250
Charge press. hPa: 1500
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 100.00...105.00
1000S.: (99.00...106.00)

12th speed 1/min: 900
Charge press. hPa: 1500
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 93.50...94.50
1000S.: (90.50...97.50)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 56.00...57.00
1000S.: (53.00...60.00)

20th speed 1/min: 700
Charge press. hPa: 1500
Shutoff

electromagnet Volt: 24
Del. quantity cm³/: 92.50...98.50
1000S.: (91.50...99.50)

Mech. shutoff:
Mech. Abststellung:

1st speed 1/min: 1250
Charge press. hPa: 1500
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 280
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 280
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 9.00...13.00
1000S.: (5.00...17.00)

Dispersion cm³/: 6.5
1000S.: (6.5)

2nd speed 1/min: 400
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 300
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 1.00...9.00
1000S.: (0.00...10.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 130.00...190.00
1000S.: (130.00...190.00)

2nd speed 1/min: 230
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 50.00...90.00
1000S.: (50.00...90.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 130.00...190.00
1000S.: (130.00...190.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: KOT
MS1 mm: 1.4...1.7

LO2

Ya mm: 37.2...39.2
Yb mm: 44.9...53.5

Remarks:

:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Operate control lever after each
manifold-pressure compensator pressure
change.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE6/12F1350R559
Type number : 0 460 426 229
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT

Engine : 8060.45.4385 "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value mm: 1.40...1.60
Shutoff
electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000
Charge press hPa: 1000
Setting value bar: 6.60...7.20
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 61.00...62.00

Shutoff
electromagnet Volt: 24
Dispersion cm³/: 3.5
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm³/
1000S.: 56.00...57.00

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm³/
1000S.: 10.00...14.00

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 4.0
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1500
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 41.00...47.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm³/: 60.00...110.00
mind 1000S.: 60.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 1100
 Charge press hPa: 1000
 TD travel mm: 2.40...3.00
 mm: (2.00...3.40)
 Shutoff
 electromagnet Volt: 24
 4th speed 1/min: 1000
 Charge press hPa: 1000
 TD travel mm: 1.40...1.60
 mm: (0.80...2.20)
 Shutoff
 electromagnet Volt: 24
 5th speed 1/min: 1350
 Charge press. hPa: 1000
 TD travel mm: 4.60...5.20
 mm: (4.20...5.60)
 Shutoff
 electromagnet Volt: 24
 Supply-pump pressure characteristic:
 1st speed 1/min: 500
 Charge press. hPa: 1000
 Supply-pump pressure bar: 3.80...4.40
 Shutoff
 electromagnet Volt: 24
 2nd speed 1/min: 1000
 Charge press. hPa: 1000
 Supply-pump pressure bar: 6.60...7.20
 Shutoff
 electromagnet Volt: 24
 3rd speed 1/min: 1350
 Charge press. hPa: 1000
 Supply-pump pressure bar: 8.50...9.10
 Shutoff
 electromagnet Volt: 24
 Overflow quantity at overflow valve:
 1st speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Overflow quantity cm³/10s: 69.50...152.90
 (54.50...167.90)
 2nd speed 1/min: 1350
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Overflow quantity cm³/10s: 97.30...180.70
 (82.30...195.70)
 Delivery-quant. and breakaway char.:
 1st speed 1/min: 500

Charge-air pressure-setting point hPa: 150
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/1000s.: 62.50...63.50
 (59.00...67.00)
 2nd speed 1/min: 1630
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/1000s.: 0.00...3.00
 (0.00...3.00)
 5th speed 1/min: 1500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/1000s.: 41.00...47.00
 (36.00...52.00)
 8th speed 1/min: 1450
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/1000s.: 47.00...63.00
 (45.00...65.00)
 9th speed 1/min: 1350
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/1000s.: 57.00...60.00
 (55.00...62.00)
 10th speed 1/min: 1000
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/1000s.: 59.50...63.50
 (58.00...65.00)
 12th speed 1/min: 500
 Charge press. hPa: 1000
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/1000s.: 63.50...67.50
 (62.00...69.00)
 18th speed 1/min: 500
 Charge press. hPa: -
 Shutoff
 electromagnet Volt: 24
 Del. quantity cm³/1000s.: 56.00...57.00
 (53.00...59.00)
 Mech. shutoff:
 Mech. Abststellung:
 1st speed 1/min: 1350
 Charge press. hPa: 1000
 Del. quantity cm³/1000s.: 0.00...3.00
 (0.00...3.00)
 Shutoff
 electromagnet volt: 24
 Electr. shutoff:

1st speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 10.00...14.00
1000S.: (7.00...17.00)
Dispersion cm³/: 4.0
1000S.: (5.0)

2nd speed 1/min: 425
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 45.00...75.00
1000S.: (45.00...75.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm: 3.5...3.7
KF mm: KOT
MS1 mm: 1.2...1.4
Ya mm: 37.9...39.9
Yb mm: 42.3...46.5

Remarks:

:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SOF
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE6/12F1350R561
Type number : 0 460 426 230
Customer Part-No. :

Customer-specific information
Customer : IVECO-FIAT

Engine : 8060.45.4385 "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil
return temp. °C
with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
Pressure bar: 250.00...253.00

Perforated-plate
diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value mm: 2.60...2.80
Shutoff
electromagnet Volt: 24

L06

Supply-pump pressure

Speed 1/min: 1100
Charge press hPa: 1000
Setting value bar: 7.90...8.50
Shutoff
electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 65.00...66.00

Shutoff
electromagnet Volt: 24
Dispersion cm3/
1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 48.00...49.00

Shutoff
electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 350
Del. quantity cm3/
1000S.: 10.00...14.00

Shutoff
electromagnet Volt: 24
Del. quantity cm3/: 4.0
1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1500
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 37.00...43.00

Shutoff
electromagnet Volt: 24

Start:

Speed 1/min: 100
Del. quantity cm3/: 60.00...110.00
mind 1000S.: 60.00

Shutoff
electromagnet Volt: 24

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 1100
Charge press hPa: 1000
TD travel mm: 2.60...2.80
mm: (2.00...3.40)

Shutoff
electromagnet Volt: 24
4th speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 1.20...1.80
mm: (0.80...2.20)

Shutoff
electromagnet Volt: 24
5th speed 1/min: 1350
Charge press. hPa: 1000
TD travel mm: 4.60...5.20
mm: (4.20...5.60)

Shutoff
electromagnet Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
Supply-pump pressure bar: 5.20...5.80
Shutoff

electromagnet Volt: 24
2nd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump pressure bar: 7.90...8.50
Shutoff

electromagnet Volt: 24
3rd speed 1/min: 1350
Charge press. hPa: 1000
Supply-pump pressure bar: 9.40...10.00
Shutoff

electromagnet Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 69.50...152.90
(54.50...167.90)

2nd speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Overflow quantity cm³/10s: 97.30...180.70
(82.30...195.70)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600

Charge-air pressure-setting point hPa: 400
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 60.50...61.50
(57.00...65.00)

2nd speed 1/min: 1600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 0.00...3.00
(0.00...3.00)

5th speed 1/min: 1500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 37.00...43.00
(32.00...48.00)

8th speed 1/min: 1450
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 45.00...61.00
(43.00...63.00)

9th speed 1/min: 1350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 57.00...60.00
(55.00...62.00)

10th speed 1/min: 1200
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 59.50...63.50
(58.00...65.00)

12th speed 1/min: 700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 65.00...66.00
(62.00...69.00)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 48.00...49.00
(45.00...52.00)

20th speed 1/min: 600
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 24
Del. quantity cm³/1000s.: 66.50...70.50
(65.00...72.00)

Mech. shutoff:
Mech. Abstellung:

1st speed 1/min: 1350
Charge press. hPa: 1000

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350
Charge press. hPa: -
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Idle delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 10.00...14.00
1000S.: (7.00...17.00)

Dispersion cm³/: 4.0
1000S.: (5.0)

2nd speed 1/min: 425

Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

3rd speed 1/min: 375
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 2.00...8.00
1000S.: (0.00...10.00)

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

2nd speed 1/min: 250
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 25.00...55.00
1000S.: (25.00...55.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 24
Del. quantity cm³/: 60.00...110.00
1000S.: (60.00...110.00)

Shutoff electromagnet:

Cut-in
min voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm: 3.5...3.7
KF	mm: KOT
MS1	mm: 1.5...1.8
Ya	mm: 37.9...39.9
Yb	mm: 42.5...47.7

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F25JCR311
Type number : 0 460 484 016
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : TUD3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.60...4.00
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 4.70...5.30
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1500
Del. quantity cm3/
1000S.: 20.50...21.50
Dispersion cm3/: 2.0
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 375
Del. quantity cm3/
1000S.: 5.00...7.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 1.50...2.50
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2625
Del. quantity cm3/
1000S.: 15.00...19.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 32.00...58.00
mind 1000S.: 32.00
KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 7.00...7.80
mm: (6.70...8.10)
KSB/AFB valve Volt: 12
Shutoff electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 3.60...4.00
mm: (3.10...4.50)
KSB/AFB valve Volt: 12
Shutoff electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 1.30...2.10
mm: (1.00...2.40)
KSB/AFB valve Volt: 12
Shutoff electromagnet Volt: 12
8th speed 1/min: 1000
TD travel mm: 4.00...5.00 B
mm: (3.30...5.70) B
KSB/AFB valve Volt: -
Shutoff electromagnet Volt: 12
9th speed 1/min: 500
TD travel mm: 2.60...3.60 A
mm: (1.90...4.30) A
KSB/AFB valve Volt: -
Shutoff electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump pressure bar: 2.90...3.50
KSB/AFB valve Volt: 12
Shutoff electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump pressure bar: 4.70...5.30
KSB/AFB valve Volt: 12
Shutoff electromagnet Volt: 12
3rd speed 1/min: 2450
Supply-pump pressure bar: 7.50...8.10

KSB/AFB valve Volt: 12
Shutoff electromagnet Volt: 12
4th speed 1/min: 500
Supply-pump pressure bar: 3.60...5.20 A
KSB/AFB valve Volt: -
Shutoff electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
KSB/AFB valve Volt: 12
Shutoff electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(27.80...97.30)
2nd speed 1/min: 2450
KSB/AFB valve Volt: 12
Shutoff electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...152.90
(41.70...167.90)

Delivery-quant. and breakaway char.:

3rd speed 1/min: 2775
KSB/AFB valve Volt: 12
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s: 3.00...9.00
(0.00...12.00)
5th speed 1/min: 2625
KSB/AFB valve Volt: 12
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s: 15.00...19.00
(13.00...21.00)
9th speed 1/min: 2450
KSB/AFB valve Volt: 12
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s: 20.00...22.00
(18.80...23.20)
12th speed 1/min: 1500
KSB/AFB valve Volt: 12
Shutoff electromagnet Volt: 12
Del. quantity cm³/1000s: 20.50...21.50
(18.80...23.20)

20th speed 1/min: 500
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 18.30...21.30
1000S.: (16.80...22.80)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 375
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

KSB/AFB
valve Volt: 12

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 375
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.00...7.00
1000S.: (2.00...10.00)

High Idle:

1st speed 1/mi: 475
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.00...7.00
1000S.: (2.00...10.00)

Residual:

1.Rotacao 1/min: 550
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 1.50...2.50
1000S.: (0.00...4.00)

Automatic starting fuel delivery:

1st speed 1/min: 200
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 36.00...70.00
1000S.: (36.00...70.00)

2nd speed 1/min: 300
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...30.00
1000S.: (10.00...30.00)

4th speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.00...58.00
1000S.: (32.00...58.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.6...6.0
MS mm: 1.1...1.5
Ya mm: 36.2...38.2
Yb mm: 48.5...59.5

Remarks:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

A = KSB adjustment point
B = KSB curve point

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/8F220GR337-4
Type number : 0 460 484 035
Customer Part-No. :

Customer-specific information
Customer : SEAT

Engine : 1.9l SD Klima

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.10...3.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.50...6.10
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 35.50...36.50
Dispersion cm3/
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
1000S.: 7.00...9.00
Del. quantity cm3/
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 575
Del. quantity cm3/
1000S.: 2.00...3.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525
Del. quantity cm3/
1000S.: 10.00...14.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/
mind 1000S.: 35.00
Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference 1000S.: -5.00...-11.0 #
Shutoff

electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250

TD-travel
difference mm: -0.30...-0.5 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2200
TD travel mm: 7.10...7.90
mm: (6.80...8.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 3.10...3.50
mm: (2.60...4.00)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 1.10...1.90
mm: (0.80...2.20)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 4.30...4.90
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 5.50...6.10
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 2200
Supply-pump
pressure bar: 7.70...8.30
Shutoff

electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...86.10
quantity cm³/10s: (26.70...101.10)

2nd speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Overflow : 55.60...152.90
quantity cm³/10s: (41.60...167.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2700
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 2525
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (8.00...16.00)

8th speed 1/min: 2425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 18.00...28.00
1000S.: (17.00...29.00)

9th speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.00...33.00
1000S.: (29.80...34.20)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.50...36.50
1000S.: (33.80...38.20)

20th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.20...33.20
1000S.: (28.70...34.70)

21th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 27.50...32.50
1000S.: (25.00...35.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

Residual:

1. Rotacao 1/min: 575

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 2.00...3.00

1000S.: (0.50...4.50)

2nd speed 1/min: 525

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 2.50...4.50

1000S.: (1.00...6.00)

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1250

Inj.-qty. cm³/ : 0.0...+3.0 Z"

difference 1000S.: -

TD-travel dif.measurement:

correttore anticipo iniezione (SV):

1st speed 1/min: 1250

TD-travel : -0.8...-1.2 "

difference mm: (-0.5...-1.5) "

Shutoff

electromagnet Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):

1st speed 1/min: 1250

Supply pump-

pressure : -0.50...-0.90"

difference bar: (-0.3...-1.1) "

Automatic starting fuel delivery:

1st speed 1/min: 180

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 35.00...75.00

1000S.: (35.00...75.00)

2nd speed 1/min: 380

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 18.00...38.00

1000S.: (18.00...38.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 35.00...75.00

1000S.: (35.00...75.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4

KF mm: 5.1...5.5

MS mm: 1.1...1.5

SVS max. mm: 4.6

Ya mm: 37.6...41.6

Yb mm: 49.9...63.3

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 02.94
replaces : 10.04.92
Calibrating oil : ISO-4113

Injection pump : VE4/8F2300R463
Type number : 0 460 484 051
Customer Part-No. :

Customer-specific information
Customer : FIAT-AUTO

Engine : M708 BA/FA 17.L

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 5.10...5.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 5.30...5.90
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1500
Del. quantity cm³/
1000S.: 28.80...29.80
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.5
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm³/
1000S.: 10.00...14.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.5
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2500
Del. quantity cm³/
1000S.: 17.00...23.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 37.00...63.00
mind 1000S.: 37.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm³/
difference 1000S.: -7.00...-13.0 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1500
TD-travel
difference mm: -0.70...-0.9 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2300
TD travel mm: 8.60...9.40
mm: (8.30...9.70)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
TD travel mm: 5.10...5.50
mm: (4.60...6.00)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 800
TD travel mm: 1.60...2.40
mm: (1.10...2.90)

Shutoff
electromagnet Volt: 12
Shutoff
electromagnet Volt: 12
6th speed 1/min: 2000
TD travel mm: 7.20...8.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2300
Supply-pump pressure bar: 7.40...8.00
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1500
Supply-pump pressure bar: 5.30...5.90
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 600
Supply-pump pressure bar: 3.10...3.70
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 41.70...83.40
(26.70...98.40)
2nd speed 1/min: 2300
Shutoff
electromagnet Volt: 12
Overflow quantity cm³/10s: 55.60...139.00
(40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2900
Shutoff

electromagnet Volt: 12
Del. quantity cm³/1000S.: 0.00...1.60
(0.00...1.60)

3rd speed 1/min: 2700
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 1.00...9.00
(0.00...10.00)

5th speed 1/min: 2500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 17.00...23.00
(15.00...25.00)

9th speed 1/min: 2300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 29.90...32.30
(28.60...33.60)

12th speed 1/min: 1500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 28.80...29.80
(27.00...31.60)

15th speed 1/min: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 28.80...31.20
(27.70...32.30)

20th speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 28.50...31.50
(26.50...33.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/1000S.: 0.00...3.00
(0.00...3.00)
Shutoff
electromagnet Volt: -

Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/1000S.: 10.00...14.00
(7.00...17.00)

Dispersion cm³/1000S.: 2.5
(3.0)
2nd speed 1/min: 650
Shutoff
electromagnet Volt: 12

Del. quantity cm³/1000S.: 0.00...5.00
(0.00...5.00)
3rd speed 1/min: 550

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.00...8.00
1000S.: (0.00...10.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
Inj.-qty. cm³/ : -7.0...-9.0 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1500
Supply pump-
pressure : -0.1...-0.3 "
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 43.00...59.00
1000S.: (43.00...59.00)

2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.00...42.00
1000S.: (32.00...42.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...63.00
1000S.: (37.00...63.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.3...5.7
MS mm: 1.6...2.0
Ya mm: 37.2...39.2
Yb mm: 47.8...56.2

Remarks:

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR
Edition : 08.02.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/8F2400R495
Type number : 0 460 484 063
Customer Part-No. :

Customer-specific information
Customer : FORD

Engine : 1,8 L IDI NA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Start of delivery block
Piston stroke mm: 0.85
mm: +0.02(0.06)

Outlet : B

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 6.50...6.90

L18

AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 6.40...7.00
KSB/AFB

valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1750
Del. quantity cm3/
1000S.: 31.00...31.40

KSB/AFB 11
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
1000S.: 6.00...10.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 530
Del. quantity cm3/
1000S.: 1.00...5.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2625
Del. quantity cm3/
1000S.: 9.50...15.50

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...70.00
mind 1000S.: 50.00
KSB/AFB
Valve Volt: 12
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1200
Inj.-qty. cm3/
difference 1000S.: -5.20...-13.20 #
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1200
TD-travel
difference mm: -1.50...-1.70#
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 8.40...9.20
mm: (8.00...9.60)
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
TD travel mm: 6.50...6.90
mm: (6.00...7.40)
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
4th speed 1/min: 800
TD travel mm: 2.80...3.60
mm: (2.40...4.00)
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
8th speed 1/min: 1000
TD travel mm: 2.80...5.20 B
mm: (2.70...5.30) B
KSB/AFB
valve Volt: -

Shutoff
electromagnet Volt: 12
9th speed 1/min: 400
TD travel mm: 3.40...3.60 A
mm: (2.50...4.50) A

KSB/AFB
valve Volt: -
Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 4.10...4.70
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Supply-pump
pressure bar: 6.40...7.00
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Supply-pump
pressure bar: 7.90...8.50
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 41.70...86.10
quantity cm3/10s: (26.70...101.10)
2nd speed 1/min: 2400
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

3rd speed 1/min: 2950
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 0.00...2.00
 1000S.: (0.00...2.00)
 5th speed 1/min: 2625
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 9.50...15.50
 1000S.: (8.00...17.00)
 8th speed 1/min: 2550
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 15.00...23.00
 1000S.: (13.00...25.00)
 9th speed 1/min: 2400
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 25.10...27.10
 1000S.: (24.10...28.10)
 12th speed 1/min: 1750
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 31.00...31.40
 1000S.: (29.50...32.90)
 15th speed 1/min: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 28.70...31.70
 1000S.: (27.90...32.50)
 20th speed 1/min: 750
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 28.50...31.50
 1000S.: (27.70...32.30)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: 12

Damper set qty.:

LFG-setting:

L20

solidale con carcassa:
 Idle delivery:

1st speed 1/min: 425
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.00...10.00
 1000S.: (4.00...12.00)

High Idle:

1st speed 1/min: 570
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 11.00...15.00
 1000S.: (9.00...17.00)

Residual:

1. Rotacao 1/min: 530
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 1.00...5.00
 1000S.: (0.20...5.80)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1200
 Inj.-qty. cm³/: -5.0...7.0 "
 difference 1000S.: -
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1200
 Inj.-qty. cm³/: +2.0...+8.0 Z'
 difference 1000S.: -

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):

1st speed 1/min: 1200
 TD-travel : -1.7...-2.5 '
 difference mm: -
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):
 1st speed 1/min: 1200

Supply pump-
pressure : -0.1...-0.3 "
difference bar: -
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 275
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...80.00
1000S.: (50.00...80.00)

2nd speed 1/min: 500
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 28.00...40.00
1000S.: LFG- 570 VH— VL

3rd speed 1/min: 500
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 24.00...36.00
1000S.: LFG- 425 VH— VL

4th speed 1/min: 200
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...70.00
1000S.: LFG- 425 VH— VL

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: -
KF mm: KOT
MS mm: 2.1...2.3
Ya mm: 31.8...35.8
Yb mm: 38.0...47.0

Ya = Distance between VE flange and
speed-control lever in idle
position :
Measurement point = edge of control

Lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
Lever on distributor-head end

A = KSB adjustment point
B = KSB curve point

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2300R537
Type number : 0 460 484 067
Customer Part-No. :

Customer-specific information
Customer : FIAT-AUTO

Engine : M708 HT 17.L

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 4.00...4.20
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 5.20...5.80
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 41.00...42.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 750
Del. quantity cm3/
1000S.: 28.00...29.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

11

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
1000S.: 10.00...14.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (2.5)

Full-load speed regulation

Speed 1/min: 2500
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 29.00...33.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm³/: 35.00...59.00
mind 1000S.: 35.00

KSB/AFB

Valve Volt: 12

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000

Charge press hPa: 1000

TD travel mm: 6.50...7.10

mm: (6.20...7.40)

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

3rd speed 1/min: 1500

Charge press hPa: 1000

TD travel mm: 4.00...4.20

mm: (3.50...4.70)

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

4th speed 1/min: 1000

Charge press hPa: 1000

TD travel mm: 1.10...1.70

mm: (0.80...2.00)

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

5th speed 1/min: 2300

Charge press. hPa: 1000

TD travel mm: 7.90...8.50

mm: (7.60...8.80)

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

8th speed 1/min: 1000

Charge press. hPa: 1000

TD travel mm: 2.00...4.00 B

mm: -

KSB/AFB

valve Volt: -

Shutoff

electromagnet Volt: 12

9th speed 1/min: 400

Charge press. hPa: 1000

TD travel mm: 2.50...4.50 A

mm: -

KSB/AFB

valve Volt: -

Shutoff

electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2300

Charge press. hPa: 1000

Supply-pump

pressure bar: 7.30...7.90

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

3rd speed 1/min: 1500

Charge press. hPa: 1000

Supply-pump

pressure bar: 5.20...5.80

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

4th speed 1/min: 1000

Charge press. hPa: 1000

Supply-pump

pressure bar: 3.90...4.50

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750

Charge press. hPa: -

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Overflow : 41.70...83.40

quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 2300

Charge press. hPa: 1000

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Overflow : 55.60...139.00

quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 1100

Charge-air pressure-setting

point hPa: 350

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 37.00...38.00

1000S.: (34.50...40.50)

2nd speed 1/min: 2900

Charge press. hPa: 1000
 KSB/AFB valve Volt: 12
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 3rd speed 1/min: 2700
 Charge press. hPa: 1000
 KSB/AFB valve Volt: 12
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 4.50...12.50
 1000S.: (3.50...13.50)
 5th speed 1/min: 2500
 Charge press. hPa: 1000
 KSB/AFB valve Volt: 12
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 29.00...33.00
 1000S.: (26.00...36.00)
 9th speed 1/min: 2300
 Charge press. hPa: 1000
 KSB/AFB valve Volt: 12
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 40.00...43.00
 1000S.: (39.00...44.00)
 12th speed 1/min: 1500
 Charge press. hPa: 1000
 KSB/AFB valve Volt: 12
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 41.00...42.00
 1000S.: (39.20...43.80)
 16th speed 1/min: 1100
 Charge press. hPa: -
 KSB solenoid-operated valve volt: 12
 Shutoff electromagnet volt: 12
 Del. quantity cm³/: 29.00...32.00
 1000H.: -
 18th speed 1/min: 750
 Charge press. hPa: -
 KSB/AFB valve Volt: 12
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 28.00...29.00
 1000S.: (25.50...31.50)
 20th speed 1/min: 750
 Charge press. hPa: 1000
 KSB/AFB valve Volt: 12

Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 38.00...41.00
 1000S.: (37.00...42.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff electromagnet volt: -
 KSB/AFB valve Volt: 12

Idle delivery:

1st speed 1/min: 450
 KSB/AFB valve Volt: 12
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 10.00...14.00
 1000S.: (7.00...17.00)

Dispersion cm³/: 2.5
 1000S.: (2.5)

2nd speed 1/min: 550
 KSB/AFB valve Volt: 12
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

3rd speed 1/min: 400
 KSB/AFB valve Volt: 12
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 20.50...25.50
 1000S.: -

Part-load del. at 3rd inj.-qty.
 terza fermo della portata
 stop (EGR set)
 scarico) (ARF)
 gaz d'échappement-ARF)
 Spacing mm: 12.0

1st speed 1/min: 1100
 Charge press. hPa: 1000
 KSB/AFB valve Volt: 12
 Shutoff electromagnet Volt: 12
 Del. quantity cm³/: 19.0...21.00
 1000S.: (17.50...22.50)

Automatic starting fuel delivery:

1st speed 1/min: 300
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...57.00
1000S.: (37.00...57.00)

2nd speed 1/min: 500
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.00...37.00
1000S.: (17.00...37.00)

4th speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...59.00
1000S.: (35.00...59.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.2...5.6
MS	mm: 0.8...1.2
Ya	mm: 37.2...39.2
Yb	mm: 40.4...49.0

Adjustment Potentiometer:

Supply voltage
pot. volt: 5.0
Output volt
pot. volt: 3.32

Remarks:

:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control

Lever on distributor-head end

A = KSB adjustment point
B = KSB curve point

Pump with slave plunger

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column:

Test sheet : FIA
Edition : 02.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2300R538
Type number : 0 460 484 068
Customer Part-No. :

Customer-specific information
Customer : FIAT-AUTO

Engine : M708 HT 17.L

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 4.00...4.20
AFB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Charge press hPa: 1000
Setting value bar: 5.20...5.80
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 41.00...42.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Dispersion cm3/
1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 750
Del. quantity cm3/
1000S.: 28.00...29.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

11

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
1000S.: 10.00...14.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm3/
1000S.: (2.5)

Full-load speed regulation

Speed 1/min: 2500
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 29.00...33.00

KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm³/: 35.00...59.00
mind 1000s.: 35.00

KSB/AFB

Valve Volt: 12

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications

Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000

Charge press hPa: 1000

TD travel mm: 6.50...7.10
mm: (6.20...7.40)

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

3rd speed 1/min: 1500

Charge press hPa: 1000

TD travel mm: 4.00...4.20
mm: (3.50...4.70)

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

4th speed 1/min: 1000

Charge press hPa: 1000

TD travel mm: 1.10...1.70
mm: (0.80...2.00)

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

5th speed 1/min: 2300

Charge press. hPa: 1000

TD travel mm: 7.90...8.50
mm: (7.60...8.80)

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

8th speed 1/min: 1000

Charge press. hPa: 1000

TD travel mm: 2.00...4.00 B
mm: -

KSB/AFB

valve Volt: -

Shutoff

electromagnet Volt: 12

9th speed 1/min: 400

Charge press. hPa: 1000

TD travel mm: 2.50...4.50 A
mm: -

KSB/AFB

valve Volt: -

Shutoff

electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2300

Charge press. hPa: 1000

Supply-pump

pressure bar: 7.30...7.90

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

3rd speed 1/min: 1500

Charge press. hPa: 1000

Supply-pump

pressure bar: 5.20...5.80

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

4th speed 1/min: 1000

Charge press. hPa: 1000

Supply-pump

pressure bar: 3.90...4.50

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750

Charge press. hPa: -

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Overflow : 41.70...83.40

quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 2300

Charge press. hPa: 1000

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Overflow : 55.60...139.00

quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 1100

Charge-air pressure-setting
point hPa: 350

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 37.00...38.00

1000s.: (34.50...40.50)

2nd speed 1/min: 2900

Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)
 3rd speed 1/min: 2700
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 4.50...12.50
 1000S.: (3.50...13.50)
 5th speed 1/min: 2500
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 29.00...33.00
 1000S.: (26.00...36.00)
 9th speed 1/min: 2300
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 40.00...43.00
 1000S.: (39.00...44.00)
 12th speed 1/min: 1500
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 41.00...42.00
 1000S.: (39.20...43.80)
 16th speed 1/min: 1100
 Charge press. hPa: -
 KSB solenoid-operated
 valve volt: 12
 Shutoff
 electromagnet volt: 12
 Del. quantity cm³/: 29.00...32.00
 1000H.: -
 18th speed 1/min: 750
 Charge press. hPa: -
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 28.00...29.00
 1000S.: (25.50...31.50)
 20th speed 1/min: 750
 Charge press. hPa: 1000
 KSB/AFB
 valve Volt: 12

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 38.00...41.00
 1000S.: (37.00...42.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

Shutoff
 electromagnet volt: -
 KSB/AFB
 valve Volt: 12

Idle delivery:

1st speed 1/min: 450
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 10.00...14.00
 1000S.: (7.00...17.00)

Dispersion cm³/: 2.5
 1000S.: (2.5)

2nd speed 1/min: 550
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 0.00...3.00
 1000S.: (0.00...3.00)

3rd speed 1/min: 400
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 20.50...25.50
 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 300
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 37.00...57.00
 1000S.: (37.00...57.00)

2nd speed 1/min: 500
 KSB/AFB
 valve Volt: 12
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 17.00...37.00
 1000S.: (17.00...37.00)

4th speed 1/min: 100
KSB/AFB
valve Volt: 12
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...59.00
1000s.: (35.00...59.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.2...5.6
MS mm: 0.8...1.2
Ya mm: 37.2...39.2
Yb mm: 40.4...49.0

Remarks:

:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

A = KSB adjustment point
B = KSB curve point

Pump with slave plunger

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2300R536
Type number : 0 460 484 069
Customer Part-No. :

Customer-specific information
Customer : VW ECO

Engine : 1.9

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.00...3.40
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 4.90...5.50
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 35.50...36.50
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
1000S.: 7.00...9.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 5.50...6.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500
Del. quantity cm3/
1000S.: 18.00...28.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...61.00
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference 1000S.: -4.5...-10.5 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250

TD-travel
difference mm: -0.6...-0.8 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 5.80...6.60
mm: (5.50...6.90)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 3.00...3.40
mm: (2.50...3.90)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 0.40...1.20
mm: (0.10...1.50)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2000
Supply-pump
pressure bar: 6.90...7.50

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Supply-pump
pressure bar: 4.90...5.50

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Supply-pump
pressure bar: 3.50...4.10

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.40)

2nd speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: -

2nd speed 1/min: 2500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 18.00...28.00
1000S.: (17.00...29.00)

3rd speed 1/min: 2600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.0...14.00
1000S.: (8.00...16.00)

5th speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.50...33.50
1000S.: (30.30...34.70)

6th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.50...36.50
1000S.: (33.80...38.20)

7th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.50...33.50
1000S.: (29.00...35.00)

8th speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.50...36.50
1000S.: (29.00...39.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

Dispersion cm³/: 2.0
1000S.: (3.0)

High Idle:

1st speed 1/1mi: 525
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 7.00...9.00
1000S.: (4.00...12.00)

Residual:

1. Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 5.50...6.50
1000S.: (4.00...8.00)
2nd speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 6.00...8.00
1000S.: (4.50...9.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1200
Inj.-qty. cm3/ : -5.5...-7.5 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm3/: 0.0...+3.0 Z'
difference 1000S.: -
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : -1.3...-1.7 '
difference mm: (-1.0...-2.0) '
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : -0.1...-0.3 "
difference bar: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply pump-
pressure : -0.7...-1.1 '
difference bar: (-0.5...-1.3) '
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 308
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 18.00...38.00
1000S.: (18.00...38.00)

2nd speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 35.00...69.00
1000S.: -

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 35.00...61.00
1000S.: -

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4
KF mm: 5.1...5.5
MS mm: 1.2...1.4
Ya mm: 37.6...41.6
Yb mm: 44.0...54.0

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

On initial measurement, screw in
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

Z = Absolute delivery

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/8F2050R588
Type number : 0 460 484 073
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : F8Q - 640

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 2.40...2.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 6.50...7.10
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm³/
1000S.: 33.00...34.00

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.5
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 410
Del. quantity cm³/
1000S.: 7.50...11.50

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.5
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm³/
1000S.: 1.00...5.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2150
Del. quantity cm³/
1000S.: 24.50...30.50

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 40.00...70.00
mind 1000S.: 40.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 4.60...5.40
mm: (4.30...5.70)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500

TD travel mm: 2.40...2.80
mm: (1.90...3.30)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1250

TD travel mm: 1.00...1.80
mm: (0.70...2.10)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 3.50...4.10

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Supply-pump
pressure bar: 6.50...7.10

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Supply-pump
pressure bar: 8.00...8.60

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Overflow : 41.70...86.10
quantity cm³/10s: (26.70...101.10)

2nd speed 1/min: 2000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: (0.00...5.00)

3rd speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...20.00
1000S.: (11.00...21.00)

5th speed 1/min: 2150
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 24.50...30.50
1000S.: (23.50...31.50)

9th speed 1/min: 2000

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 29.20...31.20
1000S.: (27.90...32.50)

10th speed 1/min: 1625
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.40...33.40
1000S.: (29.60...34.20)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 33.00...34.00
1000S.: (31.20...35.80)

15th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.50...35.50
1000S.: (31.70...36.30)

20th speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.50...34.50
1000S.: (30.70...35.30)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 410
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 410
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.50...11.50
1000S.: (5.50...13.50)

High Idle:

1st speed 1/mi: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...11.00
1000S.: (5.00...13.00)

Residual:

1.Rotacao 1/min: 500
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 1.00...5.00
1000S.: (1.00...5.00)

ccm/1000 S.

Automatic starting fuel delivery:

1st speed 1/min: 210

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 45.00...75.00
1000S.: (45.00...75.00)

2nd speed 1/min: 310

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 15.00...45.00
1000S.: (15.00...45.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm³/: 40.00...70.00
1000S.: (40.00...70.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4

KF mm: 5.3...5.5

MS mm: 1.2...1.4

SVS max. mm: 3.3

Ya mm: 16.0...20.0

Yb mm: 65.9...77.7

Remarks:

⋮

Ya = Distance between VE flange and
speed-control lever in idle
position

Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position

Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column:

Test sheet : VWV
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE5/8F2100L358-4
Type number : 0 460 485 007
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 2,4L SD T4

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.20...2.60
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 36.00...37.00
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 415
Del. quantity cm3/
1000S.: 7.00...9.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 540
Del. quantity cm3/
1000S.: 6.50...7.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400
Del. quantity cm3/
1000S.: 10.00...14.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...85.00
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm3/
difference 1000S.: -3.50...-9.50 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1500

TD-travel
difference mm: -0.30...-0.50#
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1790
TD travel mm: 5.30...6.10
mm: (5.00...6.40)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 2.20...2.60
mm: (1.70...3.10)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
TD travel mm: 0.30...1.10
mm: (0.00...1.40)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 3.80...4.40
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 5.70...6.30
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 2100
Supply-pump
pressure bar: 8.10...8.70
Shutoff

electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.80...98.40)

2nd speed 1/min: 2100
Shutoff
electromagnet Volt: 12
Overflow : 55.60...152.90
quantity cm³/10s: (41.70...167.90)

Delivery-quant. and breakaway char.:

3rd speed 1/min: 2600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

5th speed 1/min: 2400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (8.00...16.00)

8th speed 1/min: 2300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.00...27.00
1000S.: (16.00...28.00)

9th speed 1/min: 2100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...32.00
1000S.: (28.80...33.20)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.00...37.00
1000S.: (34.30...38.70)

20th speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.00...35.00
1000S.: (30.50...36.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 415
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 415
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

High Idle:

1st speed 1/mi: 465
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

Residual:

1. Rotacao 1/min: 540
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.50...7.50
 1000S.: (6.00...10.00)
 2nd speed 1/min: 490
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.80...8.80
 1000S.: (6.30...11.30)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1500
 Inj.-qty. cm³/ : -6.0...-8.0 ''
 difference 1000S.: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 Inj.-qty. cm³/: 0.0...+3.0 Z'
 difference 1000S.: -
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 TD-travel : -1.7...-2.1 '
 difference mm: (-1.3...-2.50)'
 Shutoff
 electromagnet Volt: 12

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1500
 Supply pump-
 pressure : -0.10...-0.30''
 difference bar: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 Supply pump-
 pressure : -0.8...-1.2 '
 difference bar: -

Automatic starting fuel delivery:

1st speed 1/min: 180
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 35.00...85.00
 1000S.: (35.00...85.00)

2nd speed 1/min: 380
 Shutoff
 electromagnet Volt: 12

M11

Del. quantity cm³/: 17.00...37.00
 1000S.: (17.00...37.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 35.00...85.00
 1000S.: (35.00...85.00)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
 K mm: 3.2...3.4
 KF mm: KOT
 MS mm: 1.3...1.5
 SVS max. mm: 1.9
 Ya mm: 32.8...34.8
 Yb mm: 60.5...71.5

Remarks:

:
 :
 :
 Ya = Distance between VE flange and
 speed-control lever in idle
 position
 Measurement point = edge of control
 lever on drive end

Yb = Distance between VE flange and
 speed-control lever in rated speed
 position
 Measurement point = edge of control
 lever on distributor-head end

On initial measurement, screw in
 residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
 residual-quantity adjusting screw 2 mm.

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE5/8F2100L453-4
Type number : 0 460 485 009
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 2,4L WK T4 KLIMA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.20...2.60
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 36.00...37.00
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 415
Del. quantity cm3/
1000S.: 7.00...9.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 540
Del. quantity cm3/
1000S.: 6.50...7.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400
Del. quantity cm3/
1000S.: 10.00...14.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...85.00
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm3/
difference 1000S.: -3.50...-9.50 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1500

TD-travel
difference mm: -0.30...-0.50#
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1790
TD travel mm: 5.30...6.10
mm: (5.00...6.40)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 2.20...2.60
mm: (1.70...3.10)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
TD travel mm: 0.30...1.10
mm: (0.00...1.40)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 3.80...4.40

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 5.70...6.30

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2100
Supply-pump
pressure bar: 8.10...8.70

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.80...98.40)

2nd speed 1/min: 2100
Shutoff
electromagnet Volt: 12
Overflow : 55.60...152.90
quantity cm³/10s: (41.70...167.90)

Delivery-quant. and breakaway char.:

3rd speed 1/min: 2600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

5th speed 1/min: 2400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (8.00...16.00)

8th speed 1/min: 2300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.00...27.00
1000S.: (16.00...28.00)

9th speed 1/min: 2100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...32.00
1000S.: (28.80...33.20)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.00...37.00
1000S.: (34.30...38.70)

20th speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.00...35.00
1000S.: (30.50...36.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 415
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:

solidale con carcassa:

Idle delivery:

1st speed 1/min: 415
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

High Idle:

1st speed 1/mi: 465
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

Residual:

1. Rotacao 1/min: 540
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.50...7.50
 1000S.: (6.00...10.00)
 2nd speed 1/min: 490
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.80...8.80
 1000S.: (6.30...11.30)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1500
 Inj.-qty. cm³/ : -6.0...-8.0 "
 difference 1000S.: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 Inj.-qty. cm³/ : 0.0...+3.0 Z'
 difference 1000S.: -
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 TD-travel : -1.7...-2.1 '
 difference mm: (-1.3...-2.50) '
 Shutoff
 electromagnet Volt: 12

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1500
 Supply pump-
 pressure : -0.10...-0.30"
 difference bar: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 Supply pump-
 pressure : -0.8...-1.2 '
 difference bar: -

Automatic starting fuel delivery:

1st speed 1/min: 180
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 35.00...85.00
 1000S.: (35.00...85.00)
 2nd speed 1/min: 380
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 17.00...37.00
 1000S.: (17.00...37.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 35.00...85.00
 1000S.: (35.00...85.00)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
 K mm: 3.2...3.4
 KF mm: KOT
 MS mm: 1.3...1.5
 SVS max. mm: 1.9
 Ya mm: 32.8...34.8
 Yb mm: 62.5...68.5

Ajustement Potentiometer:

Supply voltage
 pot. volt: 5.0
 Output volt
 pot. volt: 0.8

Remarks:

:
 :
 Ya = Distance between VE flange and
 speed-control lever in idle
 position
 Measurement point = edge of control
 lever on drive end
 Yb = Distance between VE flange and
 speed-control lever in rated speed
 position
 Measurement point = edge of control
 lever on distributor-head end

On initial measurement, screw in
 residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
 residual-quantity adjusting screw 2 mm.

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE5/8F2100L457
Type number : 0 460 485 010
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 2,4l SD T4

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.20...2.60
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm³/
1000S.: 36.00...37.00
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.0
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 415
Del. quantity cm³/
1000S.: 7.00...9.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 540
Del. quantity cm³/
1000S.: 6.50...7.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400
Del. quantity cm³/
1000S.: 10.00...14.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 35.00...61.00
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm³/
difference 1000S.: -3.50...-9.50 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1500

TD-travel
difference mm: -0.30...-0.50#
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1790
TD travel mm: 5.30...6.10
mm: (5.00...6.40)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 2.20...2.60
mm: (1.70...3.10)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
TD travel mm: 0.30...1.10
mm: (0.00...1.40)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 600
Supply-pump
pressure bar: 3.80...4.40

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 5.70...6.30

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2100
Supply-pump
pressure bar: 8.10...8.70

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.80...98.40)

2nd speed 1/min: 2100
Shutoff
electromagnet Volt: 12
Overflow : 55.60...152.90
quantity cm³/10s: (41.70...167.90)

Delivery-quant. and breakaway char.:

3rd speed 1/min: 2600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

5th speed 1/min: 2400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (8.00...16.00)

8th speed 1/min: 2300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.00...27.00
1000S.: (16.00...28.00)

9th speed 1/min: 2100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...32.00
1000S.: (28.80...33.20)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.00...37.00
1000S.: (34.30...38.70)

20th speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.00...35.00
1000S.: (30.50...36.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 415
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 415
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

Residual:

1.Rotacao 1/min: 540
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.50...7.50
1000S.: (6.00...10.00)

2nd speed 1/min: 490
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.80...8.80
1000S.: (5.30...10.80)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

2nd speed 1/min: 1500
Inj.-qty. cm³/: 0.0...+3.0 Z'
difference 1000S.: -
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1500
TD-travel : -1.7...-2.1 '
difference mm: (-1.3...-2.50)'
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1500
Supply pump-
pressure : -0.8...-1.2 '
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 130
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...69.00
1000S.: (35.00...69.00)

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.00...37.00
1000S.: (17.00...37.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...61.00
1000S.: (35.00...61.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: KOT

M17

MS mm: 1.3...1.5
SVS max. mm: 1.9
Ya mm: 32.8...34.8
Yb mm: 60.5...71.5

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

On initial measurement, screw in
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VES/8F2100L545
Type number : 0 460 485 017
Customer Part-No. :

Customer-specific information
Customer : VW 153

Engine : 2,4L T4

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.20...2.60
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm³/
1000S.: 36.00...37.00
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.0
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 415
Del. quantity cm³/
1000S.: 7.00...9.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 540
Del. quantity cm³/
1000S.: 6.50...7.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400
Del. quantity cm³/
1000S.: 10.00...14.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 35.00...85.00
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Charge press hPa: 12
Inj.-qty. cm³/
difference 1000S.: -3.50...-9.50 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)

1.Speed 1/min: 1500
TD-travel
difference mm: -0.30...-0.50#
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1790
TD travel mm: 5.00...5.80
mm: (4.70...6.10)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 2.20...2.60
mm: (1.70...3.10)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
TD travel mm: 0.70...1.50
mm: (0.40...1.80)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Supply-pump
pressure bar: 5.00...5.60

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 5.70...6.30

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2100
Supply-pump
pressure bar: 7.20...7.80

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.80...98.40)

2nd speed 1/min: 2100
Shutoff
electromagnet Volt: 12
Overflow : 55.60...152.90
quantity cm³/10s: (41.70...167.90)

Delivery-quant. and breakaway char.:

3rd speed 1/min: 2600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

5th speed 1/min: 2400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (8.00...16.00)

8th speed 1/min: 2300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.00...27.00
1000S.: (16.00...28.00)

9th speed 1/min: 2100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...32.00
1000S.: (28.80...33.20)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.00...37.00
1000S.: (34.30...38.70)

20th speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.30...35.30
1000S.: (30.80...36.80)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 415
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 415
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

Residual:

1.Rotacao 1/min: 540
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 6.50...7.50
1000S.: (5.00...9.00)
2nd speed 1/min: 490
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.80...8.80
1000S.: (5.30...10.30)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1500
Inj.-qty. cm³/ : -6.0...-8.0 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Inj.-qty. cm³/: 0.0...+3.0 Z'
difference 1000S.: -
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1500
TD-travel : -1.9...-2.3 Z'
difference mm: (-1.5...-2.70)'
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1500
Supply pump-
pressure : -0.10...-0.30"
difference bar: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Supply pump-
pressure : -0.8...-1.2 '
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...85.00
1000S.: (35.00...85.00)

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.00...37.00
1000S.: (17.00...37.00)

4th speed 1/min: 100

M20

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...85.00
1000S.: (35.00...85.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.6...6.0
MS mm: 1.3...1.5
SVS max. mm: 4.9
Ya mm: 32.8...34.8
Yb mm: 60.5...71.5

Ajustement Potentiometer:

Supply voltage
pot. volt: 5.0
Output volt
pot. volt: 0.8

Remarks:

Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

On initial measurement, screw in
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
residual-quantity adjusting screw 2 mm.

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE5/8F2100L545-4
Type number : 0 460 485 018
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 2,4L SD T4 KLIMA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 2.20...2.60
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.70...6.30
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 36.00...37.00
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 415
Del. quantity cm3/
1000S.: 7.00...9.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 540
Del. quantity cm3/
1000S.: 6.50...7.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400
Del. quantity cm3/
1000S.: 10.00...14.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...85.00
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm3/
difference 1000S.: -3.50...-9.50 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1500

TD-travel
difference mm: -0.30...-0.50#
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1790
TD travel mm: 5.30...6.10
mm: (5.00...6.40)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 2.20...2.60
mm: (1.70...3.10)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
TD travel mm: 0.30...1.10
mm: (0.00...1.40)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Supply-pump
pressure bar: 5.00...5.60

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 5.70...6.30

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1790
Supply-pump
pressure bar: 7.20...7.80
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.80...98.40)
2nd speed 1/min: 2100

Shutoff
electromagnet Volt: 12
Overflow : 55.60...152.90
quantity cm³/10s: (41.70...167.90)

Delivery-quant. and breakaway char.:

3rd speed 1/min: 2600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000s.: (0.00...6.00)

5th speed 1/min: 2400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000s.: (8.00...16.00)

8th speed 1/min: 2300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.00...27.00
1000s.: (16.00...28.00)

9th speed 1/min: 2100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...32.00
1000s.: (28.80...33.20)

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.00...37.00
1000s.: (34.30...38.70)

20th speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.30...35.30
1000s.: (30.80...36.80)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 415
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 415
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000s.: (4.00...12.00)

High Idle:

1st speed 1/mi: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000s.: (4.00...12.00)

Residual:

1. Rotacao 1/min: 540
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.50...7.50
 1000S.: (5.00...9.00)
 2nd speed 1/min: 490
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.80...8.80
 1000S.: (5.30...10.30)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1500
 Inj.-qty. cm³/ : -6.0...-8.0 "
 difference 1000S.: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 Inj.-qty. cm³/: 0.0...+3.0 Z'
 difference 1000S.: -
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 TD-travel : -1.7...-2.1 '
 difference mm: (-1.3...-2.50)'
 Shutoff
 electromagnet Volt: 12

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1500
 Supply pump-
 pressure : -0.10...-0.30"
 difference bar: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 Supply pump-
 pressure : -0.8...-1.2 '
 difference bar: -
 Shutoff
 electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 35.00...85.00
 1000S.: (35.00...85.00)
 2nd speed 1/min: 380

Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 17.00...37.00
 1000S.: (17.00...37.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 35.00...85.00
 1000S.: (35.00...85.00)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
 K mm: 3.2...3.4
 KF mm: 5.6...6.0
 MS mm: 1.3...1.5
 SVS max. mm: 1.9
 Ya mm: 32.8...34.8
 Yb mm: 60.5...71.5

Remarks:

:
 :
 Ya = Distance between VE flange and
 speed-control lever in idle
 position
 Measurement point = edge of control
 lever on drive end

Yb = Distance between VE flange and
 speed-control lever in rated speed
 position
 Measurement point = edge of control
 lever on distributor-head end

On initial measurement, screw in
 residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out
 residual-quantity adjusting screw 2 mm.

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE5/8F2100L457-1
Type number : 0 460 485 019
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 2,4l WK-SD T4 CAMPER

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Setting value mm: 4.10...4.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500
Setting value bar: 7.10...7.70
Shutoff
electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 35.00...36.00
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 415
Del. quantity cm3/
1000S.: 7.00...9.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 540
Del. quantity cm3/
1000S.: 6.50...7.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400
Del. quantity cm3/
1000S.: 10.00...14.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...85.00
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1500
Inj.-qty. cm3/
difference 1000S.: -7.50...-13.50 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1500

TD-travel
difference mm: -1.10...-1.30#
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1790
TD travel mm: 5.90...6.70
mm: (5.60...7.00)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
TD travel mm: 4.10...4.50
mm: (3.60...5.00)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1100
TD travel mm: 1.20...2.00
mm: (0.90...2.30)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1100
Supply-pump
pressure bar: 5.90...6.50

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1500
Supply-pump
pressure bar: 7.10...7.70

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1790
Supply-pump
pressure bar: 7.80...8.40

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.80...98.30)

2nd speed 1/min: 2100
Shutoff
electromagnet Volt: 12
Overflow : 55.60...152.90
quantity cm³/10s: (40.70...167.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

5th speed 1/min: 2400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.00...14.00
1000S.: (8.00...16.00)

8th speed 1/min: 2300
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 17.00...27.00
1000S.: (16.00...28.00)

9th speed 1/min: 2100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 28.50...30.50
1000S.: (27.30...31.70)

10th speed 1/min: 1850
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 29.50...35.50
1000S.: -

12th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...36.00
1000S.: (33.30...37.70)

20th speed 1/min: 600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.80...34.80
1000S.: (30.30...36.30)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 415
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 415
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...9.00
1000S.: (4.00...12.00)

Residual:

1. Rotacao 1/min: 540
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.50...7.50
 1000S.: (5.00...9.00)
 2nd speed 1/min: 490
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 6.80...8.80
 1000S.: (5.30...10.30)

Load-dependent start of delivery:
 Inj.-qty.dif.measurement:

1st speed 1/min: 1500
 Inj.-qty. cm³/ : -6.0...-8.0 "
 difference 1000S.: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 Inj.-qty. cm³/ : 0.0...+3.0 Z'
 difference 1000S.: -
 Shutoff
 electromagnet Volt: 12

TD-travel dif.measurement:
 correttore anticipo iniezione (SV):
 1st speed 1/min: 1500
 TD-travel : -1.9...-2.3 '
 difference mm: (-1.5...-2.7)'
 Shutoff
 electromagnet Volt: 12

SP press.-dif.measurement:
 pompa di mandata (FP):
 1st speed 1/min: 1500
 Supply pump-
 pressure : -0.10...0.30"
 difference bar: -
 Shutoff
 electromagnet Volt: 12
 2nd speed 1/min: 1500
 Supply pump-
 pressure : -0.8...-1.2 '
 difference bar: -
 Shutoff
 electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 35.00...85.00
 1000S.: (35.00...85.00)

2nd speed 1/min: 380
 Shutoff
 electromagnet Volt: 12

Del. quantity cm³/: 17.00...37.00
 1000S.: (17.00...37.00)

4th speed 1/min: 100
 Shutoff
 electromagnet Volt: 12
 Del. quantity cm³/: 35.00...85.00
 1000S.: (35.00...85.00)

Shutoff electromagnet:

Cut-in
 min voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
 K mm: 3.2...3.4
 KF mm: 5.6...6.0
 MS mm: 1.3...1.5
 Ya mm: 32.8...34.8
 Yb mm: 60.5...71.5

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position
 Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
 Measurement point = edge of control lever on distributor-head end

Pump with slave plunger

Z = Absolute delivery

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R449
Type number : 0 460 494 297
Customer Part-No. :

Customer-specific information
Customer : RNUR

Engine : J8S - 786 R21

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3.40...3.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.10...5.70
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm³/
1000S.: 51.00...52.00

Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 750
Del. quantity cm³/
1000S.: 38.50...39.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm³/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.5
1000S.: (2,5)

Residual-Delivery Setting

Speed 1/min: 525
Del. quantity cm³/
1000S.: 3.50...7.50

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500
Charge press hPa: 1000
Del. quantity cm³/
1000S.: 7.50...13.50

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 50.00...90.00
mind 1000S.: 50.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm³/
difference 1000S.: -7.50...-11.50 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
Charge press hPa: -
TD-travel
difference mm: -1.2...-1.4 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2125
Charge press hPa: 1000
TD travel mm: 6.80...7.60
mm: (6.50...7.90)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 3.40...3.80
mm: (3.10...4.50)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.10...2.90
mm: (2.00...3.40)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.40...5.00

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.10...5.70

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2125
Charge press. hPa: 1000

Supply-pump
pressure bar: 7.50...8.10
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 41.70...86.10
quantity cm³/10s: (26.70...101.10)
2nd speed 1/min: 2125
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point hPa: 300
LDA-stroke mm: 6,4
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 45.50...46.50
1000S.: (43.00...49.00)

2nd speed 1/min: 2700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 2500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 7.50...13.50
1000S.: (6.50...14.50)

8th speed 1/min: 2350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 29.50...37.50
1000S.: (28.50...38.50)

9th speed 1/min: 2125
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³: 48.10...50.10
1000S.: (46.80...51.40)

11th speed 1/min: 1625
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 48.90...50.90
1000S.: (47.60...52.20)
12th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 51.00...52.00
1000S.: (49.20...53.80)
15th speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.60...53.60
1000S.: (49.10...55.10)
16th speed 1/min: 1250
Charge press. hPa: -
Shutoff
electromagnet volt: 12
Del. quantity cm³/: 36.60...39.60
1000H.: (35.10...41.10)
18th speed 1/min: 750
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 38.50...39.50
1000S.: (36.00...42.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.00...17.00
1000S.: (11.00...19.00)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...10.00
1000S.: (4.00...12.00)

Residual:

1.Rotacao 1/min: 525

NO1

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.50...7.50
1000S.: (3.50...7.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/ : -4.5...-6.5 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/: +2.0...+8.0'Z
difference 1000S.: -

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
Charge press. hPa: -
TD-travel : -1.9...-2.7 '
difference mm: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Charge press. hPa: -
Supply pump-
pressure : -0.1...-0.3 "
difference bar: -
Shutoff
electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 825
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 29.50...30.50
1000S.: (27.50...32.50)

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...90.00
1000S.: (50.00...90.00)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...50.00
1000S.: (20.00...50.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...90.00
1000S.: (50.00...90.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: KOT
MS	mm: 1.3...1.5
SVS max.	mm: 2.8
LDA stroke	mm: 6.4
XK	mm: LD=5.6..6.4
Ya	mm: 38.8...42.8
Yb	mm: 36.2...45.8

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

On initial measurement, screw in residual-quantity adjusting screw 1 mm.

Screw out residual-quantity adjusting screw 1 mm after setting pump.

Microswitch
Gap A = 1.0...2.5 mm

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R449-1
Type number : 0 460 494 298
Customer Part-No. :

Customer-specific information
Customer : RMUR

Engine : J8S - 786 R21

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3.40...3.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

N03

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.10...5.70
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 51.00...52.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 750
Del. quantity cm3/
1000S.: 38.50...39.50

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm3/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (2,5)

Residual-Delivery Setting

Speed 1/min: 525
Del. quantity cm3/
1000S.: 3.50...7.50

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 7.50...13.50

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 50.00...90.00
mind 1000S.: 50.00

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm³/
difference 1000S.: -7.50...-11.50 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
Charge press hPa: -
TD-travel
difference mm: -1.2...-1.4 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2125
Charge press hPa: 1000
TD travel mm: 6.80...7.60
mm: (6.50...7.90)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 3.40...3.80
mm: (3.10...4.50)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
Charge press hPa: 1000
TD travel mm: 2.10...2.90
mm: (2.00...3.40)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.40...5.00
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.10...5.70
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 2125
Charge press. hPa: 1000

Supply-pump
pressure bar: 7.50...8.10
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 41.70...86.10
quantity cm³/10s: (26.70...101.10)
2nd speed 1/min: 2125
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point hPa: 300
LDA-stroke mm: 6.4
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.50...46.50
1000S.: (43.00...49.00)

2nd speed 1/min: 2700
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 2500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.50...13.50
1000S.: (6.50...14.50)

8th speed 1/min: 2350
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 29.50...37.50
1000S.: (28.50...38.50)

9th speed 1/min: 2125
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 48.10...50.10
1000S.: (46.80...51.40)

11th speed 1/min: 1625
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12

Del. quantity cm³/: 48.90...50.90
1000S.: (47.60...52.20)
12th speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 51.00...52.00
1000S.: (49.20...53.80)
15th speed 1/min: 1000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.60...53.60
1000S.: (49.10...55.10)
16th speed 1/min: 1250
Charge press. hPa: -
Shutoff
electromagnet volt: 12
Del. quantity cm³/: 36.60...39.60
1000H.: (35.10...41.10)
18th speed 1/min: 750
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 38.50...39.50
1000S.: (36.00...42.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)
Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.00...17.00
1000S.: (11.00...19.00)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...10.00
1000S.: (4.00...12.00)

Residual:

1.Rotacao 1/min: 525

N05

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 3.50...7.50
1000S.: (3.50...7.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/ : -4.5...-6.5 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/: +2.0...+8.0'Z
difference 1000S.: -

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
Charge press. hPa: -
TD-travel : -1.9...-2.7 '
difference mm: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Charge press. hPa: -
Supply pump-
pressure : -0.1...-0.3 "
difference bar: -
Shutoff
electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 825
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 29.50...30.50
1000S.: (27.50...32.50)

Automatic starting fuel delivery:

1st speed 1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...90.00
1000S.: (50.00...90.00)

2nd speed 1/min: 350
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...50.00
1000S.: (20.00...50.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...90.00
1000S.: (50.00...90.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: KOT
MS mm: 1.3...1.5
SVS max. mm: 2.8
LDA stroke mm: 6.4
XK mm: LD=5.6..6.4
Ya mm: 38.8...42.8
Yb mm: 36.2...45.8

Remarks:
Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

On initial measurement, screw in residual-quantity adjusting screw 1 mm.

Screw out residual-quantity adjusting screw 1 mm after setting pump.

Microswitch
Gap A = 1.0...2.5 mm

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2250R328-7
Type number : 0 460 494 312
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1.6l TD/LLK B3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500
Charge press. hPa: 750
Setting value mm: 3.80...4.20
Shutoff
electromagnet Volt: 12

Supply-pump pressure

N07

Speed 1/min: 1500
Charge press hPa: 750
Setting value bar: 5.60...6.20
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 750
Del. quantity cm3/
1000S.: 42.00...43.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700
Del. quantity cm3/
1000S.: 27.60...28.20

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 465
Del. quantity cm3/
1000S.: 12.00...14.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.5
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 615
Del. quantity cm3/
1000S.: 4.00...5.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525
Charge press hPa: 750
Del. quantity cm3/
1000S.: 13.00...17.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...85.00
mind 1000S.: 35.00

Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2250
Charge press hPa: 750
TD travel mm: 6.10...6.90
mm: (5.80...7.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1500
Charge press hPa: 750
TD travel mm: 3.80...4.20
mm: (3.30...4.70)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 1000
Charge press hPa: 750
TD travel mm: 1.80...2.60
mm: (1.50...2.90)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 700
Charge press. hPa: 750
Supply-pump
pressure bar: 3.30...3.90
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1500
Charge press. hPa: 750
Supply-pump
pressure bar: 5.60...6.20
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 2250
Charge press. hPa: 750
Supply-pump
pressure bar: 7.70...8.30
Shutoff

electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)

2nd speed 1/min: 2250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 55.60...152.90
quantity cm³/10s: (41.70...167.90)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 900
Charge-air pressure-setting
point hPa: 300
LDA-stroke mm: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.10...34.70
1000S.: (31.40...37.40)

2nd speed 1/min: 2650
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000S.: (0.00...6.00)

5th speed 1/min: 2525
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.00...17.00
1000S.: (11.00...19.00)

8th speed 1/min: 2425
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 26.50...36.50
1000S.: (25.50...37.50)

9th speed 1/min: 2250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.30...38.30
1000S.: (35.10...39.50)

12th speed 1/min: 1500
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.00...43.00
1000S.: (40.30...44.70)

16th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet volt: 12
Del. quantity cm³/: 28.20...30.60
1000H.: (27.90...30.90)

18th speed 1/min: 700
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 27.60...28.20
1000S.: (24.90...30.90)

20th speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.00...37.00
1000S.: (32.50...38.50)

21th speed 1/min: 400
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.90...34.90
1000S.: (31.70...35.10)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 465
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 465
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...14.00
1000S.: (7.50...18.50)

High Idle:

1st speed 1/mi: 515
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...14.00
1000S.: (8.00...18.00)

Residual:

1.Rotacao 1/min: 615
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 4.00...5.00
1000S.: (1.50...7.50)
2nd speed 1/min: 565
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.50...7.50
1000S.: (3.00...10.00)

Automatic starting fuel delivery:

1st speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...85.00
1000S.: (35.00...85.00)

4th speed 1/min: 100

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...85.00
1000S.: (35.00...85.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: K1
KF mm: 5.6...6.0
MS mm: 1.3...1.5
SVS max. mm: 3.9
Ya mm: 37.6...41.6
Yb mm: 49.9...63.3

Remarks:

:
Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2300R433-3
Type number : 0 460 494 314
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1,9 L UD -A3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 750
Setting value mm: 4.30...4.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

N10

Speed 1/min: 1250
Charge press hPa: 750
Setting value bar: 5.40...6.00
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 750
Del. quantity cm3/
1000S.: 50.00...51.00

Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 450
Del. quantity cm3/
1000S.: 37.20...43.20

Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
1000S.: 16.00...18.00

Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 7.00...8.00

Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Charge press hPa: 750
Del. quantity cm3/
1000S.: 9.00...13.00

Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 37.0...43.00
mind 1000S.: 37.0

Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Charge press hPa: -
Inj.-qty. cm³/
difference 1000S.: -7.0...-11.0 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
Charge press hPa: -
TD-travel
difference mm: -1.9...-2.1 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
Charge press hPa: 750
TD travel mm: 8.00...8.60
mm: (7.60...9.00)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 4.30...4.50
mm: (3.70...5.10)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 750
TD travel mm: 1.50...2.10
mm: (1.10...2.50)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 750
Supply-pump
pressure bar: 4.30...4.90
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750

Supply-pump
pressure bar: 5.40...6.00
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 2100
Charge press. hPa: 750

Supply-pump
pressure bar: 7.40...8.00
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...86.10
quantity cm³/10s: (29.10...98.60)
2nd speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 55.60...152.90
quantity cm³/10s: (41.70...167.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 2600
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...13.00
1000S.: (7.00...15.00)

8th speed 1/min: 2400
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.50...42.50
1000S.: (31.50...43.50)

9th speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.00...44.00
1000S.: (40.80...45.20)

12th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...51.00
1000S.: (48.30...52.70)

20th speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 43.50...46.50
1000S.: (42.80...47.20)

21th speed 1/min: 450

Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.20...43.20
1000S.: (34.70...45.70)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16.00...18.00
1000S.: (13.00...21.00)

High Idle:

1st speed 1/mi: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16.00...18.00
1000S.: (13.00...21.00)

Residual:

1.Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...8.00
1000S.: (5.50...9.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/ : -4.5...-6.5 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: -
Inj.-qty. cm³/: +0.0...+3.0 '
difference 1000S.: -
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
Charge press. hPa: -
TD-travel : -2.50...-2.9 '
difference mm: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Charge press. hPa: -
Supply pump-
pressure : -0.1...-0.3 "
difference bar: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: -
Supply pump-
pressure : -1.0...-1.4 '
difference bar: -

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.00...36.00
1000S.: (32.00...38.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...55.00
1000S.: (35.00...55.00)

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.00...51.00
1000S.: (31.00...51.00)

3rd speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...43.00
1000S.: (32.50...47.50)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.6...3.8
KF mm: KOT
MS mm: 1.0...1.4
Ya mm: 37.6...41.6
Yb mm: 49.9...63.3

Remarks:

:
Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Pump in stepped LDA

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2200R420-14
Type number : 0 460 494 323
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1.9L UD B3 Klima

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Setting value mm: 3.70...4.10
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Setting value bar: 5.50...6.10
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Del. quantity cm3/
1000S.: 42.00...43.00
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
1000S.: 9.00...11.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 575
Del. quantity cm3/
1000S.: 5.50...6.50
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600
Del. quantity cm3/
1000S.: 10.00...14.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 35.00...65.00
mind 1000S.: 35.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference 1000S.: -4.0...-10.0 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250

TD-travel
difference mm: -0.6...-0.8 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 6.60...7.40
mm: (6.30...7.70)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
TD travel mm: 3.70...4.10
mm: (3.20...4.60)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
TD travel mm: 1.60...2.40
mm: (1.30...2.70)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Supply-pump
pressure bar: 4.30...4.90
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250
Supply-pump
pressure bar: 5.50...6.10
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 2200
Supply-pump
pressure bar: 7.70...8.30
Shutoff

electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (27.80...97.30)

2nd speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Overflow : 55.60...152.90
quantity cm³/10s: (41.70...164.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...6.00
1000s.: (0.00...6.00)

3rd speed 1/min: 2600
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 10.0...14.00
1000s.: (8.00...16.00)

5th speed 1/min: 2500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 21.50...31.50
1000s.: (20.50...32.50)

8th speed 1/min: 2200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.70...38.70
1000s.: (35.50...39.90)

9th speed 1/min: 1250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.00...43.00
1000s.: (40.30...44.70)

12th speed 1/min: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 33.70...36.70
1000s.: (32.20...38.20)

15th speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.50...41.50
1000s.: (33.00...44.00)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000s.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...11.00
1000s.: (6.00...14.00)

High Idle:

1st speed 1/mi: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...11.00
1000S.: (6.00...14.00)

Residual:

1. Rotacao 1/min: 575
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 5.50...6.50
1000S.: (4.00...8.00)
2nd speed 1/min: 525
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.30...9.30
1000S.: (5.80...10.80)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : -5.0...-7.0 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Inj.-qty. cm³/: 0.0...+3.0 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : -1.8...-2.2 #
difference mm: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : -0.1...0.3 "
difference bar: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply pump-
pressure : -1.1...1.5 "
difference bar: -

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 27.00...29.00
1000S.: (25.00...31.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...75.00
1000S.: (35.00...75.00)

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 30.00...50.00
1000S.: (30.00...50.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...65.00
1000S.: (35.00...65.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm: 3.2...3.4
KF mm: 5.1...5.5
MS mm: 1.1...1.5
SVS max. mm: 2.9
Ya mm: 37.6...41.6
Yb mm: 49.9...63.3

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

Z = Absolute delivery



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113

Injection pump : VE4/9F2350R309-4
Type number : 0 460 494 325
Customer Part-No. :

Customer-specific information
Customer : RENAULT

Engine : J8S - 600 CA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Presstroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1125
Setting value mm: 2.60...3.00
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1125
Setting value bar: 4.20...4.80
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1125
Del. quantity cm³/
1000S.: 36.20...37.20
Shutoff
electromagnet Volt: 12
Dispersion cm³/: 2.5
1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 425
Del. quantity cm³/
1000S.: 13.00...17.00
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.5
1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm³/
1000S.: 4.00...8.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500
Del. quantity cm³/
1000S.: 20.00...26.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm³/: 52.00...92.00
mind 1000S.: 52.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1125
Inj.-qty. cm³/
difference 1000S.: -11.0...-15.0 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1125

TD-travel
difference mm: -0.5...-0.7 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
TD travel mm: 7.10...7.90
mm: (6.80...8.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1125
TD travel mm: 2.60...3.00
mm: (2.10...3.50)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 800
TD travel mm: 0.70...1.50
mm: (0.40...1.80)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 800
Supply-pump
pressure bar: 3.10...3.70

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1125
Supply-pump
pressure bar: 4.20...4.80

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 2000
Supply-pump
pressure bar: 6.50...7.10
Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 800
Shutoff
electromagnet Volt: 12
Overflow : 41.70...86.10
quantity cm³/10s: (26.70...101.10)

2nd speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm³/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...5.00
1000S.: (0.00...5.00)

3rd speed 1/min: 2650
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 2.50...10.50
1000S.: (1.50...11.50)

5th speed 1/min: 2500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 20.00...26.00
1000S.: (19.00...27.00)

9th speed 1/min: 2250
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.20...37.20
1000S.: (33.90...38.50)

10th speed 1/min: 1750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.90...36.90
1000S.: (33.60...38.20)

12th speed 1/min: 1125
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 36.20...37.20
1000S.: (34.40...39.00)

20th speed 1/min: 800
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 33.70...36.70
1000S.: (32.90...37.50)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 425
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 425
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 13.00...17.00
1000S.: (11.00...19.00)

High Idle:

1st speed 1/mini: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 8.50...12.50
1000S.: (6.50...14.50)

Residual:

1. Rotacao 1/mini: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 4.00...8.00
1000S.: (4.00...8.00)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1125
Inj.-qty. cm³/ : -10.0...-12.0"
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1125
Inj.-qty. cm³/: +2.0...+8.0 'Z
difference 1000S.: -

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1125
TD-travel : -1.0...-1.60 '
difference mm: -
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1125
Supply pump-
pressure : -0.10...-0.30"
difference bar: -
Shutoff
electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 210
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 45.00...85.00
1000S.: (45.00...85.00)

2nd speed 1/min: 310
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...45.00
1000S.: (25.00...45.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12

N20

Del. quantity cm³/: 52.00...92.00
1000S.: (52.00...92.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.3...5.7
MS	mm: 1.3...1.7
SVS max.	mm: 3.0
XK	mm: LD11.8.12.2
XL	mm: LP=0.4...1.5
Ya	mm: 37.8...41.8
Yb	mm: 45.1...54.9

Remarks:

:
:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

On initial measurement, screw in
residual-quantity adjusting screw 1 mm.

Screw out residual-quantity adjusting
screw 1 mm after setting pump.

Z = Absolute delivery

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2250R513
Type number : 0 460 494 341
Customer Part-No. :

Customer-specific information
Customer : PSA

Engine : XUD 9 TF-Y

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 450

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 1000
Setting value mm: 3.40...3.80
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 1000
Setting value bar: 5.60...6.20
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 1000
Del. quantity cm3/
1000S.: 53.50...54.50
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500
Del. quantity cm3/
1000S.: 36.50...37.50
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400
Del. quantity cm3/
1000S.: 12.00...14.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0
1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500
Del. quantity cm3/
1000S.: 6.00...7.00
Shutoff
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2575
Charge press hPa: 1000
Del. quantity cm3/
1000S.: 12.00...16.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 150
Del. quantity cm3/: 37.00...67.00
mind 1000S.: 37.00
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm3/
difference 1000s.: -11.0...-15.0 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
TD-travel
difference mm: -0.9...-1.1 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000
Charge press hPa: 1000
TD travel mm: 6.10...6.90
mm: (5.80...7.20)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 3.40...3.80
mm: (2.90...4.30)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 1000
TD travel mm: 1.10...1.90
mm: (0.80...2.20)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 1000
Supply-pump
pressure bar: 4.40...5.00
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 1000
Supply-pump
pressure bar: 5.60...6.20
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 2000
Charge press. hPa: 1000
Supply-pump
pressure bar: 7.30...7.90

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm3/10s: (26.70...98.40)
2nd speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Overflow : 55.60...139.00
quantity cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 750
Charge-air pressure-setting
point hPa: 350
LDA-stroke mm: 5.9
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 46.00...47.00
1000s.: (43.50...49.50)

2nd speed 1/min: 2750
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 0.00...6.00
1000s.: (0.00...6.00)

5th speed 1/min: 2575
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 12.00...16.00
1000s.: (10.00...18.00)

8th speed 1/min: 2375
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 33.00...43.00
1000s.: (32.00...44.00)

9th speed 1/min: 2150
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 49.50...51.50
1000s.: (48.30...52.70)

10th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 51.00...53.00
1000s.: (49.80...54.20)

12th speed 1/min: 1250

Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 53.50...54.50
1000S.: (51.80...56.20)

18th speed 1/min: 500
Charge press. hPa: -
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.50...38.50
1000S.: (35.00...41.00)

20th speed 1/min: 500
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 46.50...49.50
1000S.: (45.00...51.00)

Mech. shutoff:
Mech. Abst \ddot{u} llung:

1st speed 1/min: 2000
Charge press. hPa: 1000
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 400
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 12.00...14.00
1000S.: (9.00...17.00)

High Idle:

1st speed 1/min: 500
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 11.00...13.00
1000S.: (8.00...16.00)

Residual:

1. Rotacao 1/min: 500

N23

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 6.00...7.00
1000S.: (4.50...8.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : -9.0...-11.0'
difference 1000S.: -

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³/ : +0.2...+8.0 Z'
difference 1000S.: -
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250
TD-travel : -2.1...-2.5 '
difference mm: -

Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : -0.1...-0.3 ''
difference bar: -

Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Supply pump-
pressure : -0.9...-1.3 '
difference bar: -
Shutoff
electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'echappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1250
Charge press. hPa: 1000
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16.80...18.80
1000S.: (13.80...21.80)

Automatic starting fuel delivery:

2nd speed 1/min: 380

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 25.00...45.00
1000S.: (25.00...45.00)

3rd speed 1/min: 200
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...56.00
1000S.: (45.50...60.50)

4th speed 1/min: 150
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...67.00
1000S.: (37.00...67.00)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation:
K mm: 3.2...3.4
KF mm: KOT
MS mm: 1.1...1.5
LDA stroke mm: 5.9
Ya mm: 28.8...32.8
Yb mm: 67.0...81.0

Remarks:
Ya = Distance between VE flange and
speed-control lever in idle
position
Measurement point = edge of control
lever on drive end

Yb = Distance between VE flange and
speed-control lever in rated speed
position
Measurement point = edge of control
lever on distributor-head end

Permissible port/port scatter with
stop test, electrical = max. 5.0
ccm/1000 S.

Permissible port/port scatter with
stop test, mechanical = max. 5.0
ccm/1000 S.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV
Edition : 03.94
replaces : -
Calibrating oil : ISO-4113
Injection pump : VE4/9F2300R433-2
Type number : 0 460 494 346
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 1,9 l UD A3

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40.00...48.00
Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00
x Wall thickness : 2.00
x Length mm: 840

Start of delivery
Prestroke mm: -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250
Charge press. hPa: 750
Setting value mm: 4.30...4.50
Shutoff
electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250
Charge press hPa: 750
Setting value bar: 5.40...6.00
Shutoff
electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250
Charge press. hPa: 750
Del. quantity cm3/
1000S.: 50.00...51.00
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.5
1000S.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 450
Del. quantity cm3/
1000S.: 37.20...43.20
Shutoff
electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 450
Del. quantity cm3/
1000S.: 16.00...18.00
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 2.0

Residual-Delivery Setting

Speed 1/min: 550
Del. quantity cm3/
1000S.: 7.00...8.00
Shutoff
electromagnet Volt: 12
Dispersion cm3/: 2.0
1000S.: (3.0)

Full-load speed regulation

Speed 1/min: 2600
Charge press hPa: 750
Del. quantity cm3/
1000S.: 9.00...13.00
Shutoff
electromagnet Volt: 12

Start:

Speed 1/min: 100
Del. quantity cm3/: 37.00...43.00
mind 1000S.: 37.0
Shutoff
electromagnet Volt: 12

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

Speed 1/min: 1250
Inj.-qty. cm³/
difference 1000S.: -8.0...-12.0 #
Shutoff
electromagnet Volt: 12
TD-travel dif.measurement
correttore anticipo iniezione (SV)
1.Speed 1/min: 1250
TD-travel
difference mm: -0.5...-0.7 #
Shutoff
electromagnet Volt: 12

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100
Charge press hPa: 750
TD travel mm: 8.00...8.60
mm: (7.50...9.10)

Shutoff
electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 750
TD travel mm: 4.30...4.50
mm: (3.60...5.20)

Shutoff
electromagnet Volt: 12
4th speed 1/min: 750
Charge press hPa: 750
TD travel mm: 1.50...2.10
mm: (1.00...2.60)

Shutoff
electromagnet Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750
Charge press. hPa: 750
Supply-pump
pressure bar: 4.30...4.90
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250
Charge press. hPa: 750
Supply-pump
pressure bar: 5.40...6.00
Shutoff

electromagnet Volt: 12
3rd speed 1/min: 2100
Charge press. hPa: 750
Supply-pump
pressure bar: 7.40...8.00

Shutoff
electromagnet Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 41.70...83.40
quantity cm³/10s: (26.70...98.30)
2nd speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Overflow : 55.60...152.90
quantity cm³/10s: (40.60...167.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

5th speed 1/min: 2600
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 9.00...13.00
1000S.: (7.00...15.00)

8th speed 1/min: 2400
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 32.50...42.50
1000S.: (31.50...43.50)

9th speed 1/min: 2100
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 42.00...44.00
1000S.: (40.80...45.20)

12th speed 1/min: 1250
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 50.00...51.00
1000S.: (48.30...52.70)

20th speed 1/min: 700
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 43.50...46.50
1000S.: (42.80...47.20)

21th speed 1/min: 450
Charge press. hPa: -

Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.20...43.20
1000S.: (34.70...45.70)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 450
Del. quantity cm³/: 0.00...3.00
1000S.: (0.00...3.00)

Shutoff
electromagnet volt: -

Damper set qty.:

LFG-setting:
solidale con carcassa:
Idle delivery:

1st speed 1/min: 450
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16.00...18.00
1000S.: (13.00...21.00)

High Idle:

1st speed 1/mi: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 16.00...18.00
1000S.: (13.00...21.00)

Residual:

1. Rotacao 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 7.00...8.00
1000S.: (5.50...9.50)

Load-dependent start of delivery:
Inj.-qty.dif.measurement:

1st speed 1/min: 1250
Inj.-qty. cm³/ : -7.0...-9.0 "
difference 1000S.: -
Shutoff
electromagnet Volt: 12
2nd speed 1/min: 1250
Inj.-qty. cm³/: 0.0...+3.0 z'
difference 1000S.: -
Shutoff
electromagnet Volt: 12

TD-travel dif.measurement:
correttore anticipo iniezione (SV):
1st speed 1/min: 1250

TD-travel : -0.8...1.2 '
difference mm: (-0.4...-1.6) '
Shutoff
electromagnet Volt: 12

SP press.-dif.measurement:
pompa di mandata (FP):
1st speed 1/min: 1250
Supply pump-
pressure : -0.1...-0.3 "
difference bar: -
Shutoff

electromagnet Volt: 12
2nd speed 1/min: 1250

Supply pump-
pressure : -0.3...-0.7 '
difference bar: -
Shutoff

electromagnet Volt: 12

Part-load del.at 3rd inj.-qty.
terza fermo della portata
stop (EGR set)
scarico) (ARF)
gaz d'échappement-ARF)
Spacing mm: 12.0

1st speed 1/min: 1000
Charge press. hPa: 750
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 34.00...36.00
1000S.: (32.00...38.00)

Automatic starting fuel delivery:

1st speed 1/min: 180
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 35.00...55.00
1000S.: (35.00...55.00)

2nd speed 1/min: 380
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 31.00...51.00
1000S.: (31.00...51.00)

3rd speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm³/: 37.00...43.00
1000S.: (32.50...47.50)

Shutoff electromagnet:

Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.6...3.8
KF	mm: KOT
MS	mm: 1.1...1.5
LDA stroke	mm: -
XK	mm: LP=0.8..3.0
Ya	mm: 37.6...41.6
Yb	mm: 50.4...63.3

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Z = Absolute delivery

Pump in stepped LDA

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.